Computer & Information
and Communication
Technology

First grade preparatory

First Term
2024 - 2025

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Lesson 1
(Green Technology)

Objectives:

By the end of the lesson, I will be able to:	After the lesson, check the correct box: I can .....
▪ Identify what the green technology is.	☐ Very good ☐ Ok ☐ Need more work
▪ Conclude that the concept of sensor functionality and its importance in our lives.	☐ Very good ☐ Ok ☐ Need more work
▪ Propose numerous ideas for utilizing green technology in our daily lives.	☐ Very good ☐ Ok ☐ Need more work

Engage:

What is the concept of green technology? How does it contribute to maintaining a clean environment?

Learn

Concept of Green Technology:

It is occasionally referred to as sustainable technology or clean technology, as green technology is based on technological tools that help protect the environment, rather than causing harm, and optimize the use of its resources.

Egypt has shown a recent interest in utilizing electric vehicles as an alternative to traditional fuel-powered cars. This shift aims to decrease the emission of harmful substances from car exhausts and minimize fuel consumption. Electric cars operate using batteries and come with a charging station enabling connection to an external power source for recharging.

Fields of using green technology:

Green technology is used in various aspects of life, such as:

1- Renewable Energy:

- **Solar energy:** Using sunlight to generate electricity through solar panels .
- **Wind power:** Using wind turbines to produce electricity from air movement.
- **Hydropower:** Using dams to generate electricity from water movement.
- **Geothermal energy:** Using the Earth's internal heat to produce electricity.
- **Bioenergy:** Using organic materials like soybeans and corn for energy production .

2- Rationalization of energy consumption and responsible utilization:

- **Green Building:** The design and construction of buildings using eco-friendly, energy-efficient materials while enhancing ventilation and insulation .
- **Utilizing energy-efficient appliances and high-efficiency computers .**
- **Smart transportation:** utilizing electric vehicles to enhance energy efficiency within the transportation sector.

3- Waste Recycling:

- **The recycling of materials like paper, plastic, and metals into new products .**
- **Transforming organic waste into nutrient-rich compost to enhance soil fertility .**
- **Reducing waste by reusing and repairing products .**

4- Water Treatment:

- **Purifying contaminated water to be reused or drunk .**
- **Utilizing smart efficient irrigation systems like drip irrigation.**
- **Repairing water leaks and utilizing water-saving devices to rationalize water consumption .**

Benefits of green technology

1- Preservation of the environment from climate change

The impact of vehicle emissions has raised the level of carbon dioxide in the atmosphere, intensifying global warming and resulting in environmental harm. This has prompted the development of transportation alternatives, like electric cars, that lessen this impact by lowering carbon dioxide levels and decreasing environmental pollution.

2- Resource Conservation (Water - Electricity)

Green technology aids in optimizing water and electricity usage through various means, including:

- Body sensors, which detect the presence of a hand under the tap, control the flow of water by turning the taps on/off. This technology can optimize electricity usage in both residential and commercial settings by employing sensors to regulate lighting based on need.
- Solar energy technology relies on photovoltaic panels to convert solar energy into electrical energy and operate automatically when required.

For additional activities and exercises, please turn to the activity booklet (Activity No. 1)

Sensors usages:

Sensors are used in numerous tasks, including:

- regulating temperatures.
- operating the lights through various methods.
- detecting smoke from fires.

For additional activities and exercises, please turn to the activity booklet (Activity No. 2).

Self-assess

Go to the objectives at the beginning of the lesson.

Check the correct, I can........ box.

_____

- The Information and Decision Support Center website can be accessed at
 https://www.idsc.gov.eg/Article/details/9006

1- Put a check mark (✓) in front of the correct sentence and a check mark (✗) in front of the incorrect sentence.

1) Green technology tools contribute to the escalation of environmental pollution due to their utilization. ( )
2) The concept of sensors in water faucets relies solely on automatically halting the water flow. ( )
3) Electric vehicles represent a form of environmentally friendly technology. ( )
4) The concept of green buildings is attributed to institutions that can optimize their resource consumption. ( )

2- Think and answer:

- **Green technology tools contribute to preserving a clean environment for present and future generations. Show**

....
....
....
....

3- Discuss with your partners

- **Generate a variety of ideas to use green technology for environmental preservation. Collaborate within a team using digital research resources.**

....
....
....
....

4- Research, create and show:

- **Design a model for a sensor concept aimed at purifying the air in your home or optimizing electricity consumption in your classroom.**

Lesson 2

**(Digital transformation and its importance
in our daily lives)**

Objectives:

By the end of the lesson, I will be able to:	After the lesson, check the correct box: I can		
- Discuss many digital services provided by the Egyptian state.	☐ Very good	☐ Ok	☐ Need more work
- Explain digital transformation tools.	☐ Very good	☐ Ok	☐ Need more work
- Use an online platform. (The Digital Egypt Platform) meets my needs.	☐ Very good	☐ Ok	☐ Need more work

Engage

What does digital transformation mean? What digital services does the Egyptian state offer to facilitate the accomplishment of your daily tasks ؟

Learn

The term "digital transformation" is frequently discussed. What does it mean, and why is it important in our daily lives? How does the Egyptian state contribute to digital transformation?

Digital Transformation:

The combination of digital technology into all aspects of business to enhance workflow efficiency, lower costs, and innovate products and services.

The importance of digital transformation:

Digital transformation is crucial for organizations and businesses for various reasons, including:

1) **Enhancing efficiency and productivity:** through workflow optimization and error reduction results in time and effort savings, leading to cost savings.

2) **Enhancing the quality of services and products offered to customers.**

3) **Enhancing sales and revenues:** through accessing new markets and customers.

4) **Innovation and creativity:** Digital transformation significantly enhances innovation and development in institutions and companies to deliver new and quality products and services.

5) **Sustaining competitiveness:** through coping with the most recent technological advancements.

6) **Enhancing decision-making:** by offering timely data, information, and analysis to facilitate informed decisions.

7) **Minimizing energy and resource consumption.**

8) **Creating new employment opportunities.**

Heading towards digital transformation:

Digital transformation: is a national project that moves Egypt to deal through an information environment that links all government agencies to each other. Citizens can obtain all their services through the internet and mobile applications, so that various services and products are provided to citizens in an easier and faster way.

What tools are used in digital transformation?

Numerous digital transformation tools are accessible via programs, technologies, and services to help institutions and companies in enhancing performance, efficiency, and competitiveness, such as:

- ✓ Tools for managing workflows .
- ✓ Electronic payment methods .
- ✓ Collaborative and communicative tools .
- ✓ E-learning resources .
- ✓ Artificial intelligence and machine learning technologies .
- ✓ Cloud computing technologies .
- ✓ Cyber security solutions .

First- Tools for workflow management:

It enhances the efficiency of repetitive procedures and tasks, like the "Digital Egypt" platform, which seeks to enhance government procedure efficiency and deliver improved services to citizens.

The "Digital Egypt" platform:

It is a governmental digital platform offering various electronic services to citizens, including bill payments for electricity and water…etc. The application is accessible for download and use on mobile devices.

For additional activities and exercises, please turn to the activity booklet (Activity No. 1-3).

Second- Electronic payment methods such as:

- **Electronic payment cards:**
  Offer convenience by providing easy, fast, and secure electronic payment methods, simplifying electronic financial transactions for individuals .

- **INSTAPAY application for electronic payments:**
  Licensed and sanctioned by the Central Bank of Egypt, enabling the transfer and reception of funds via a bank account or digital wallet, offering various facilities including bill payments.

Third- Collaboration and Communication Tools:

A video conferencing application - similar to **Zoom** & **Google Meet -** that enables face-to-face communication with others.

Important Note:

Dear student, in order to access any digital services or products, an email address is required.

For additional activities and exercises, please turn to the activity booklet (Activity No. 4-5).

The relation between green technology and digital transformation:

Green technology and digital transformation are closely related, as each enhances the other and contributes to achieving common goals. The following table shows the most important common axes between green technology and digital transformation.

The most important common axes	Green Technology	Digital transformation
1- Enhancing resource utilization efficiency:	Decreasing the utilization of natural resources, like energy and water, through the adoption of more efficient technologies.	Reducing reliance on raw materials such as paper and pens, and minimizing waste.
2- Reducing harmful emissions:	Using renewable energy sources and enhancing energy efficiency.	Decreasing the necessity for transportation and mobility while enhancing the effectiveness of business transactions.
3- Supporting sustainability	By protecting the environment and enhancing the quality of life for future generations.	By enhancing resource efficiency, decreasing emissions, and promoting innovation.

Examples of the integration of green technology and digital transformation applications:

- Smart energy grids .
- Precision farming .
- Smart buildings .
- Smart transportation .
- Smart cities .

Benefits of integrating green technology with digital transformation:

- Speeding up the process of the digital transformation.

- Enhancing the efficiency of green technology .

- Creating new employment opportunities .

- Improving the quality of life .

Self-assess

Go to the objectives at the beginning of the lesson.

Check the correct, I can........ box.

1- Choose the correct answer from the following:

1- When using the Egypt Digital Portal, it is regarded as one of the...

    a. piracy forms

    b. digital transformation tools

    c. irresponsible website usage.

    d. electronic assault forms

2- Electronic payment applications can be used within the app…

    a. INSTAPAY

    b. Google Meet

    c. WhatsApp

    d. Email

3- .... is a common characteristic shared by green technology and digital transformation.

    a. Challenges in digital communication between citizens and government services offered by relevant ministries.

    b. Slow processes for acquiring digital services.

    c. Access digital services rapidly and securely.

    d. Vulnerability of data to hacking on the Internet.

4- Green technology and digital transformation tools work on...

    a. increasing environmental resource pollution.

    b. minimizing harm to the surrounding environment.

    c. increasing the rate of raw materials consumption.

    d. raising the costs of digital services.

2- Think and Search:

The Egyptian state has provided many digital services that help citizens accomplish their tasks. Search the Internet for the most important digital services that you can use to help you in life.

1-..

2-..

3-..

4-..

3- Think and discuss with your group:

A family member has asked you to help him obtain a violation certificate for his car. Determine the procedures that must be followed to obtain a violation certificate.

1-..

2-..

3-..

4-..

Lesson 3

(Operating Systems)

Objectives:

By the end of the lesson, I will be able to:	After the lesson, check the correct box: I can		
▪ Categorize the operating systems (computer - cellphones)	☐ Very good	☐ Ok	☐ Need more work
▪ Distinguish among operating system interfaces.	☐ Very good	☐ Ok	☐ Need more work
▪ Use an operating system on a device (school - home)	☐ Very good	☐ Ok	☐ Need more work

Engage

How digital devices such as computers or cellphones operate?

Learn

In previous classes, we studied operating systems and software, and learned about the importance of the operating system and the hardware components of the computer.

Operating System Definition:

The operating system can be defined as an interface between the user, hardware and software. It is responsible for managing the hardware components, running all software and helping the user accomplish their various tasks on the computer easily and smoothly.
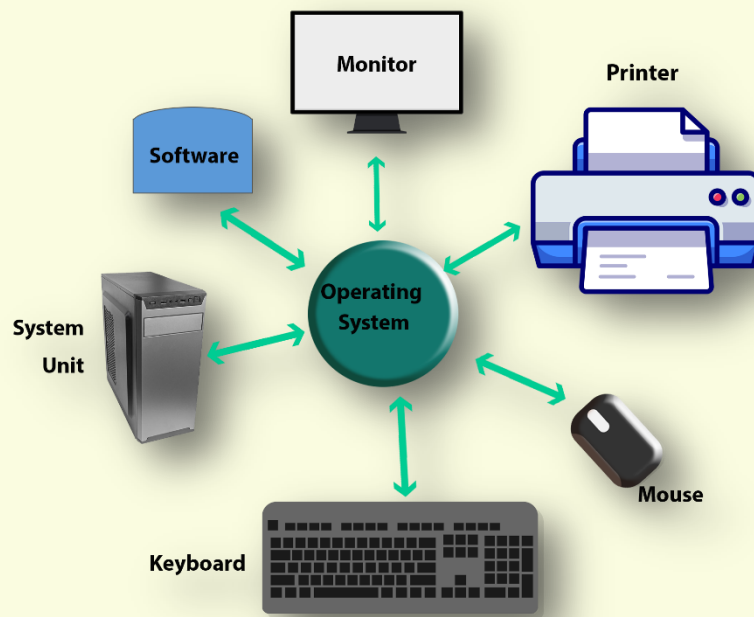
An operating system manages hardware and software components.

For additional activities and exercises, please turn to the activity booklet (Activity No. 1).

The provided diagram illustrates the key functions of the operating system.
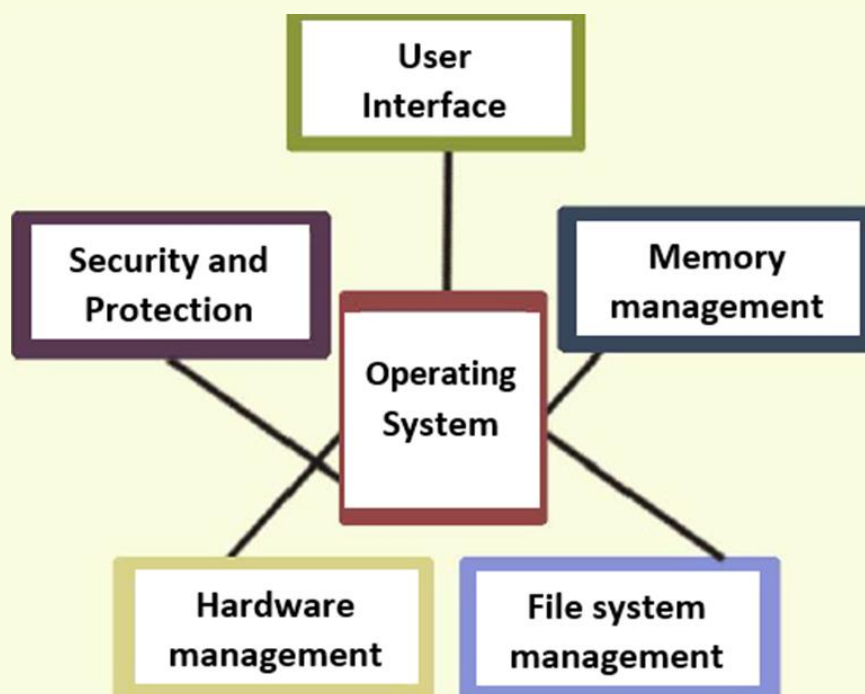
Modern electronic devices, smart devices, and operating systems used in our daily lives:

Operating systems are necessary for the operating and managing a variety of modern electronic and smart devices.

Here are examples of modern electronic devices and smart devices, along with the operating systems used:

1- Personal computers (PCs)

Desktop and laptop computers use operating systems like Microsoft Windows, macOS, and different distributions of Linux.

2- Mobile Devices:

Smartphones and tablets depend on operating

systems like:

- Apple's iOS

- Google's Android operating system.

- Alternative mobile operating systems.

3- Servers:

Servers use operating systems like:

- Linux operating system (with its diverse distributions)

- Microsoft Windows Server operating system

- Specialized server operating systems are used to manage network resources and deliver a range of services.

4- Gaming Consoles:

Gaming consoles such as PlayStation, Xbox, and Nintendo Switch feature exclusive operating systems tailored for gaming and multimedia purposes.

5- Smart TVs:

Smart TVs operate on various operating systems such as Android TV, Tizen, webOS, and others to offer smart advantages like streaming services, applications, and internet connectivity.

6- Wearable Devices:

Wearable devices like smartwatches and fitness trackers use operating systems tailored to their distinct functions and needs.

7- Network Devices:

Routers, switches, and other network equipment use operating systems for network management, settings, and security advantages.

There are various operating systems used in modern cars, vehicles, ATMs, and factories, such as:

1) Automotive Systems:

Modern cars and vehicles often have operating systems to control various functions such as infotainment, navigation, and driver assistance technologies while driving and controlling the vehicle.

2) Embedded Systems:

Operating systems are used in embedded systems like:

- Automated Teller Machine (ATM)
- Point of Sale Terminal (POS)

- Point of sale terminals are electronic devices that enable customers to pay for purchased products by deducting the price from their bank account instead of using cash.

3) <u>Industrial Control Systems (ICS)</u>

It is a broad term that includes many industrial control systems and devices used in industrial facilities to control the performance of machines and industrial processes. Industrial control systems work on the following:

- Control and monitor the progress of industrial processes, which increases factory productivity and improves the quality of manufactured products.
- Provide a safe environment for health and operational safety by reducing exposure to hazardous materials or environments such as chemical plants, water and waste treatment centers, nuclear power plants, and refineries.
- Industrial control systems are used in most industrial sectors such as energy, transportation, food and petrochemical production, electronics, medical industries, and many other industries.

These previous examples illustrate a wide range of devices that depend on operating systems to manage the resources of modern electronic devices and smart devices to run applications and provide users with a platform to interact with the device.

For additional activities and exercises, please turn to the activity booklet (Activity No. 2-3).

Startup screen of an operating system

Desktop

The operating system startup screen (desktop) includes a set of symbols called Icons that appear arranged in a specific order over a background of an image or color that the user selects.

Bars contain icons that symbolize software installed on the operating system and other icons to adjust some system settings such as date, time, sound settings and network.

Note:

- The startup screen varies for different operating systems.
- The startup screen varies for the operating system according to the version of the operating system.

For additional activities and exercises, please turn to the activity booklet (Activity No. 4).

Self-assess

Go to the objectives at the beginning of the lesson.

Check the correct I can........ box.

1- Choose the correct answer from the options provided:

1) The .... software is responsible for managing the hardware components and running all other software.

   A- Antivirus   **B**- Operating Systems   **C**- Word Processing   **D**- Painter

2) Servers use operating systems like ....

   A-Android   **B**- Tizen   **C**- Linux   **D**- macOS

3) Operating systems like Android TV, Tizen, webOS, etc. are used with ………. Devices

   A- television   **B**- server   **C**- print   **D**- networking

4) .... devices are network equipment that require an operating system to operate.

   A- Television   **B**- Printing   **C**- Smartwatches   **D**- Routers

5) Most modern cars and vehicles have operating systems to control various functions such as ....

   A-Information and navigation systems   **B**- Point of sale

   C- ATMs   **D**- printing

6) ………..... is an electronic device through which the customer can pay for the products he has purchased.

   A- POS Terminals   **B**- ATMs

   C- Industrial control systems   **D**- Smartwatch

2- Place a check mark (✓) preceding the correct statement and a check mark (✗) preceding the incorrect statement.

1. A word processing program manages the computer hardware components.   ( )
2. Device security and protection are inherent features of the operating system. ( )
3. Desktop computers utilize operating systems like Microsoft Windows.   ( )
4. Smart TVs operate on platforms like Android TV and Tizen.   ( )
5. Utilizing wearable devices like smartwatches and fitness trackers does not necessitate an operating system.   ( )

Lesson 4

(Installation and removal of software and digital peripherals)

Lesson 4 — Installation and removal of software and digital peripherals

Objectives:

By the end of the lesson, I will be able to:	After the lesson, check the correct box: I can		
- Practice the steps to install and remove a program on my device.	☐ Very good	☐ Ok	☐ Need more work
- Connect peripheral devices such as printers to my personal computer.	☐ Very good	☐ Ok	☐ Need more work
- Discuss the steps of downloading files (compressed or via the Internet) on my device.	☐ Very good	☐ Ok	☐ Need more work

Engage:

How can you add, install, or remove software on your computer or cellphone?

Learn:

While you are preparing and getting ready to apply your project on your computer or mobile, you will need to use many programs, and you must make sure that these programs are available on the device. If the operating system does not have the program you need, you can get the program yourself, either from a storage unit or by downloading the program online. You can then install the program on your computer to use it.

How you start the installation process depends on the form in which the program comes:

- If you purchased the program, the program comes on a CD or DVD, and you use this CD to install the program.
- On the other hand, if you downloaded the program from the Internet, the program is in the form of a file, and this file is used to install the program.

First: Installing the program from a CD or DVD.

1. Insert the software disc into your computer CD or DVD drive. The AutoPlay dialog box will appear. The following screen displays one of the processes that takes place in Windows 7 .

2. Click Run SETUP.EXE, where SETUP.EXE is usually the name of the installation program.

3. Follow to the installation instructions provided by the software .

Note: **Installation procedures differ from one program to another.**

Second: Installing the program from an Internet-downloaded file.

1. Use the "This PC" icon to access the downloaded file.

2. Double-clicking the file starts up the installer.

Dear student, the downloaded file may be compressed. You need to unzip it before accessing the file and selecting the SETUP.EXE icon.

Third: Installing the program from a compressed file.

Install the compressed program by the following steps:

1. Extract the compressed files.

2. Next, double-click the installation file.

3. Follow the installation instructions provided by the software.
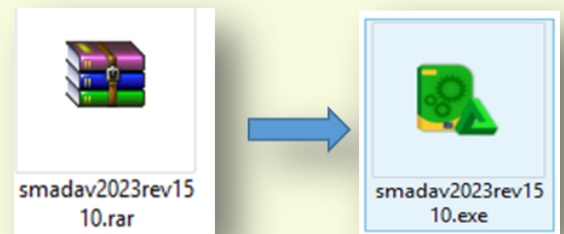
For additional activities and exercises, please turn to the activity booklet (Activity No. 1-2-3-4).

Remove or uninstall a program

When you plan to stop using a program installed on your computer or mobile, you must uninstall the program from your device.

Uninstalling a program means that you delete all the files of the program that you want to remove from your computer.

There are two methods to remove or uninstall the program; to do this…

- The program does this itself, as many programs come with their own removal or uninstallation command.

- Or through the Control Panel, where the operating system helps you uninstall the program.

Note: Removing unused programs saves disk storage space and speeds up and eases the use of the device.

Steps for uninstalling a program on the device:

1- Access the Control Panel window.

2- Clicking on "Uninstall a program" will prompt the window displaying installed programs to appear.

3- Click on the program you wish to uninstall, then select Uninstall.
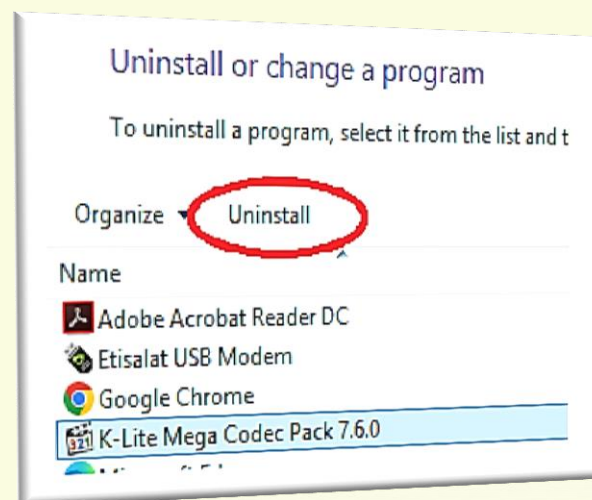
Setting up and Configuring Hardware

Operating systems support many devices attached to the computer such as printers, webcams, scanners, in a way that varies depending on the type of operating system, as the operating system automatically detects the new attached device, and the operating system installs the correct 'Driver' for the attached device, so that you can use the new attached device with its full features.

Installing a new device

In many cases, new devices include a CD or DVD for setup that contains driver files and utility programs.

The Setup program automatically copies the driver files and the setup information file (.inf) into a dedicated folder.

Plug and Play Device Installation

First: When the operating system includes a driver that matches the new peripheral device.

Modern operating systems include a list of **drivers** for many peripheral devices. When you connect a new **Plug and Play** peripheral for the first time, the operating system detects the new peripheral and searches its list of **drivers** for the appropriate **driver** for the new peripheral. If it finds a matching driver for the new peripheral, it installs the correct driver file(s) and makes other necessary adjustments to the system without any intervention from you.
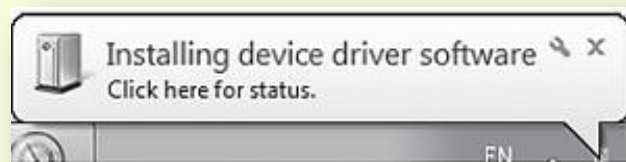
The operating system presents a notification to the user identifying the connected device.
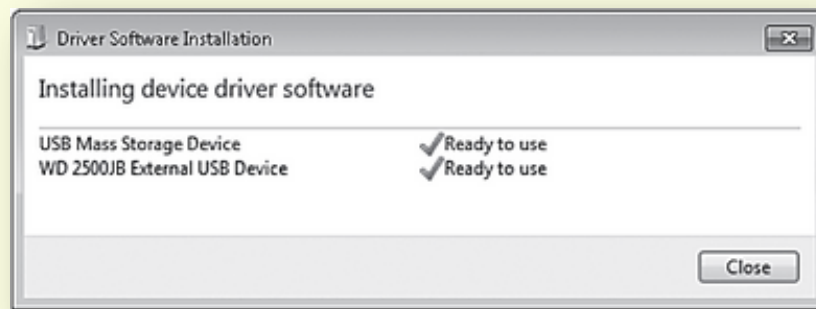
Successful device installation message

Second: When the operating system does not include a matching driver for the new accessory

When the operating system detects that a new device has been connected with the Plug and Play feature (after connecting it to a USB port, for example), but the operating system cannot determine the appropriate **driver** for this new device, the operating system runs a wizard program to find the driver for the new peripheral, and you can determine where the driver for the new peripheral is located, whether this program is on a CD or other storage device, ...

Installing the printer

First: Install a local printer (i.e. directly connected to the computer) that supports the Plug and Play feature

It is connected to the USB port, and the Plug and Play feature will automatically install it.

Second: Install a Non–Plug and Play Printer

Printers that do not support the Plug and Play feature may require some additional setup work.

- **Open the control panel** ⟹ **Click Hardware and Sound.**

⟹ **Select View Devices and Printers**
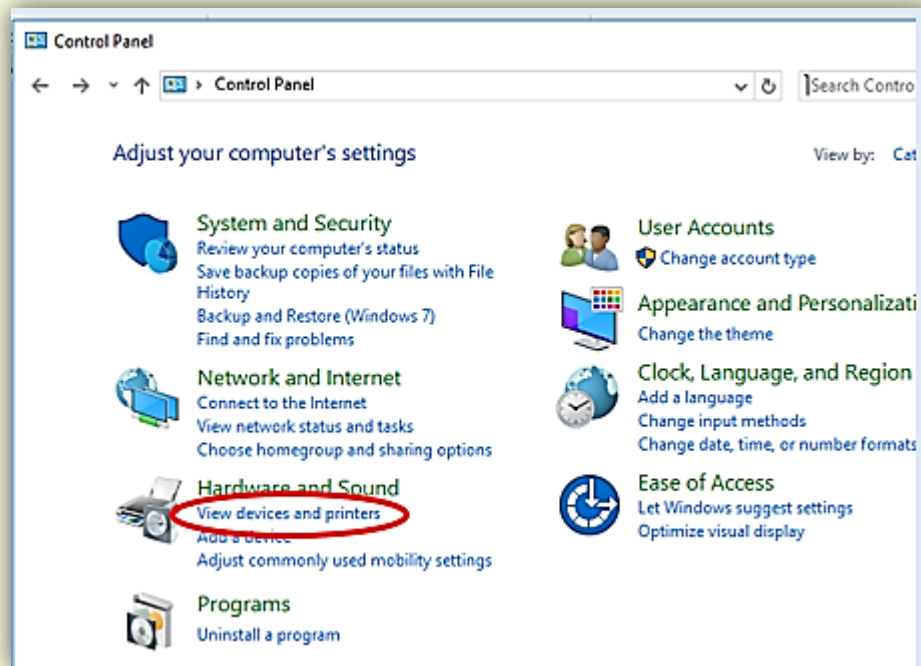
- **Click on "Add a printer".**
- **We click the printer that I desire is not listed.**
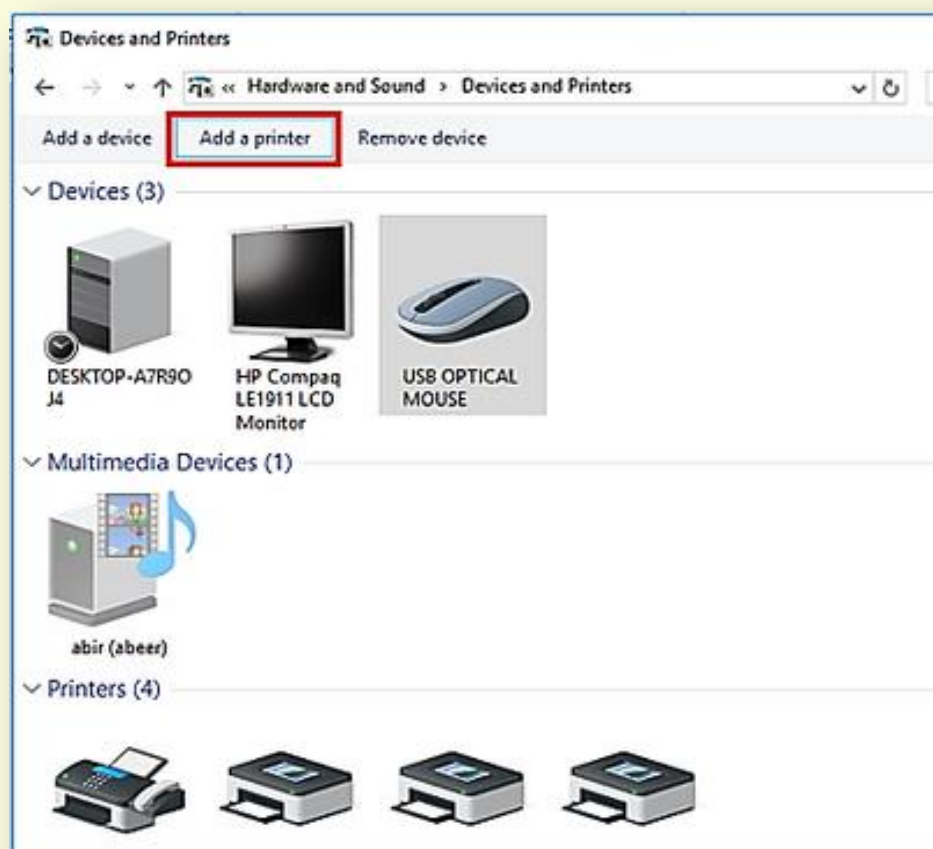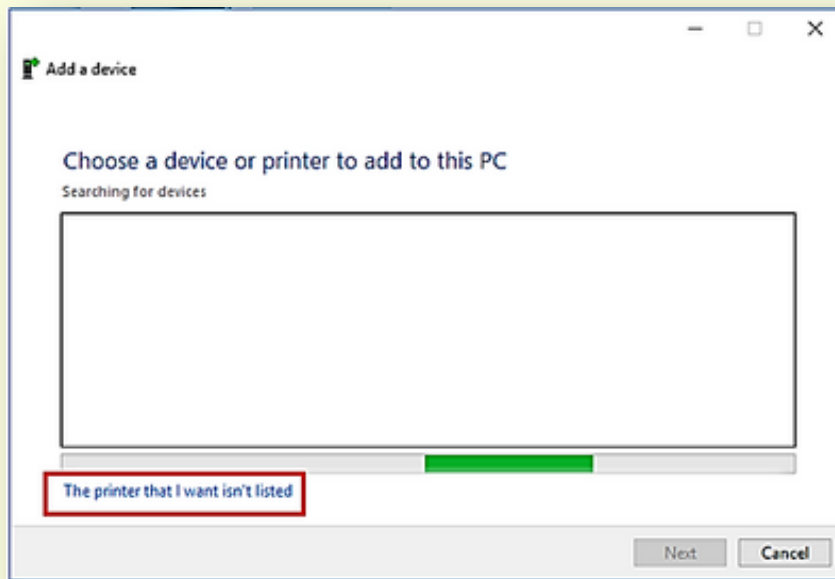
- **Select Add a local printer or network printer with manual settings.**
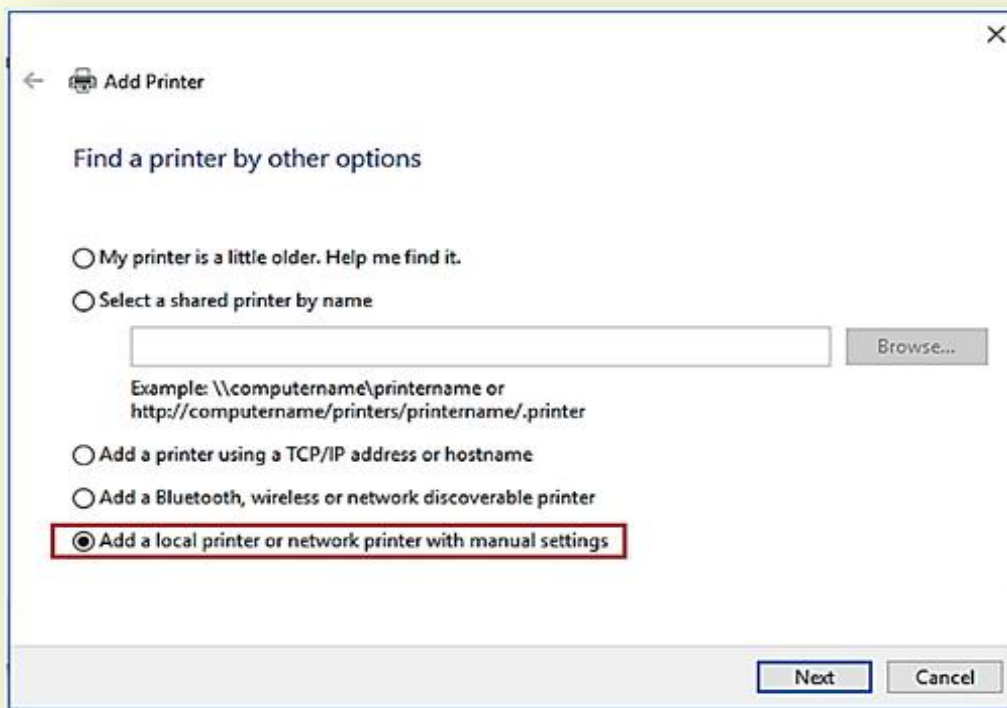
<u>To complete the setup process:</u>

- First you need to determine which port your printer is connected to, for most older printers that connect to a parallel port the correct choice is the LPT1 port, while modern printers use the USB port.
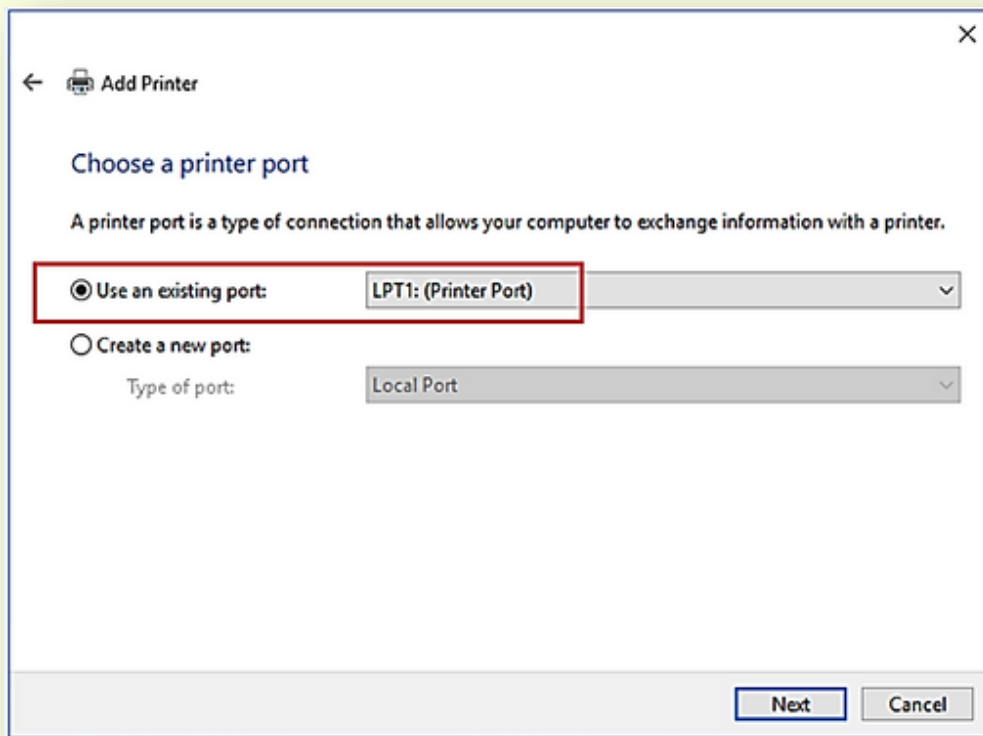
- Click '**Next**' to choose the appropriate driver.
- From the list of drivers available in the Driver Store you can choose the one that is compatible with your printer type.
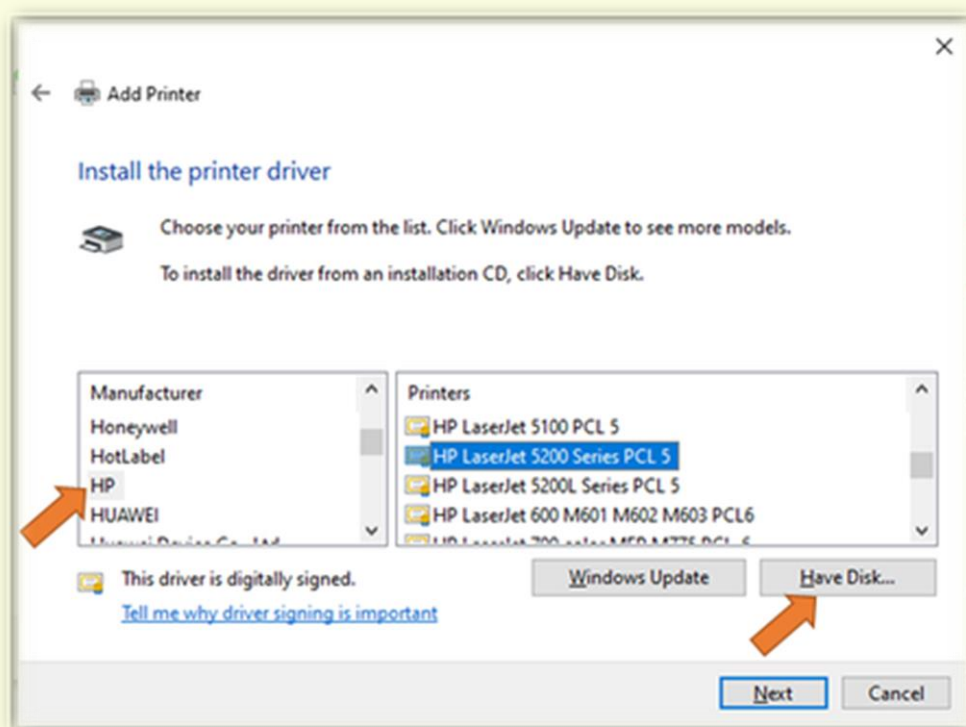
Definition of HP LaserJet 5200 Series PCL 5 Printer Driver

<u>If you don't find the driver you need</u>

- Click Have Disk.

- Browse your storage devices for the driver you need.

- If you don't have a driver to identify your printer, or if you suspect that a newer version is available, click **Windows Update** to update the list of printers.

- After the update is complete, check the list again to see if your printer model is available.

- The last step in the printer setup process is to give the printer a name. The default name usually includes the manufacturer and model of the printer; you can change this value to a more descriptive name now or later.
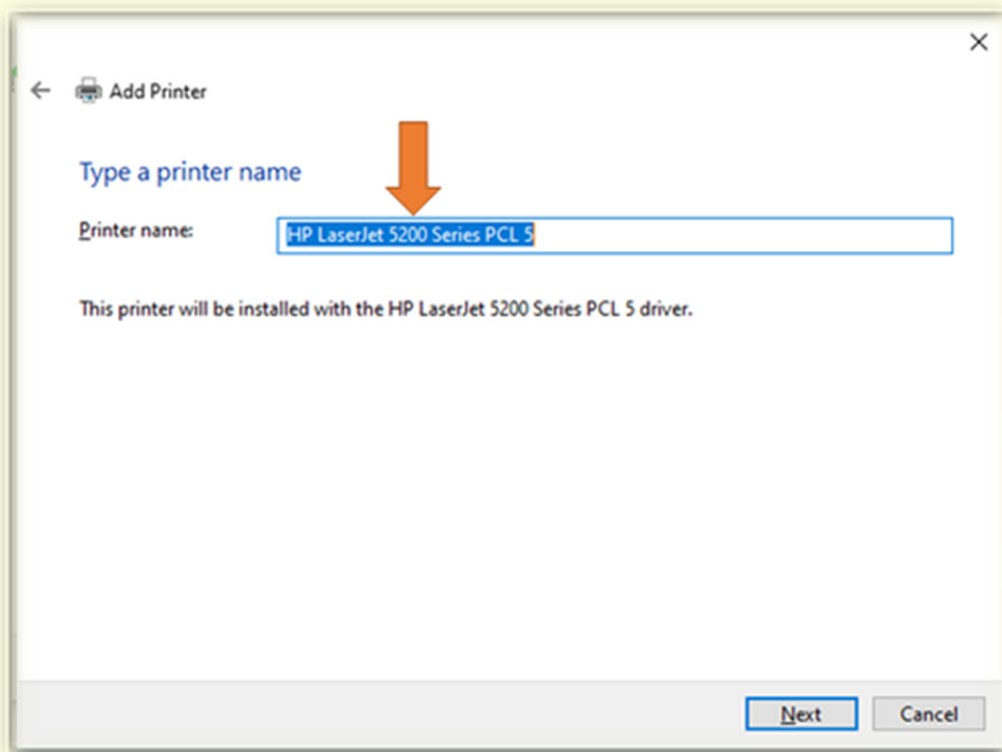
After the printer installation process is completed successfully, the wizard provides the ability to print a test page to ensure that the printer is working properly.
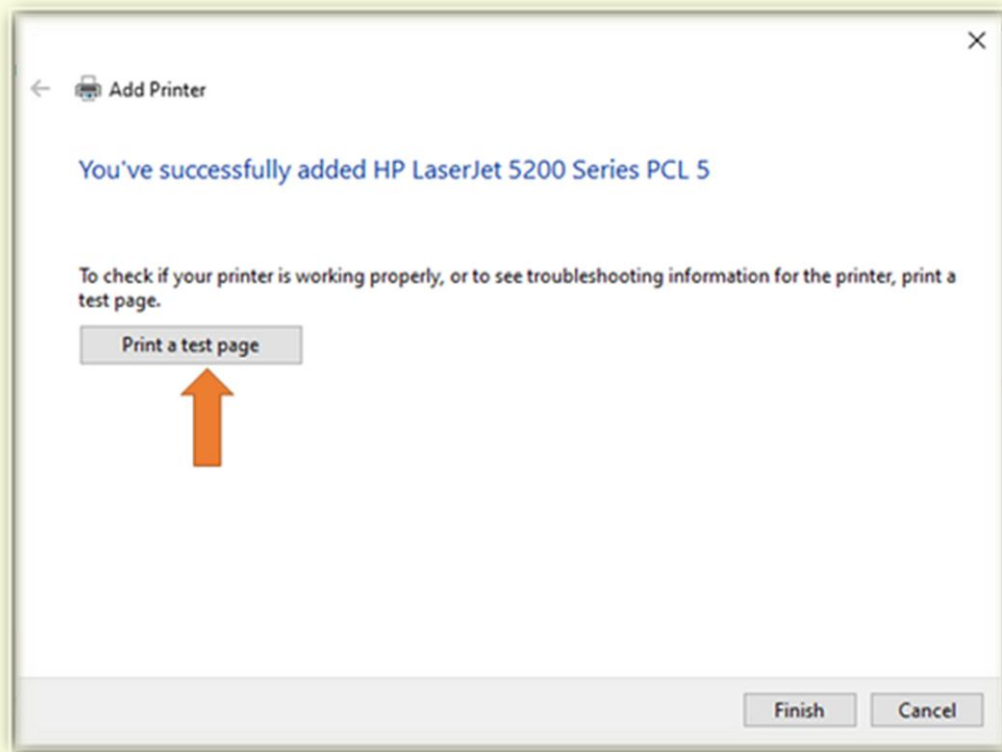
Note: If the printer driver package includes a setup program, run the setup program and through it you can identify the printer within the operating system.

For additional activities and exercises, please turn to the activity booklet (Activity No. 5-6).

Self-assess

Go to the objectives at the beginning of the lesson.

Check the correct, I can........ box.

1- Choose the correct answer from the options provided:

1) **When you download software from the Internet, the software is in the form of a/an .... which is used to install the software.**

   A- digital fingerprint   **B-** file   **C-** image   **D-** worksheet

2) **Removing a program means that you are ....**

   A- Copying all the program files to the computer.

   B- Deleting all the program files from the computer.

   C- Pasting all the program files to the computer.

   D- Saving all the program files from the computer.

3) **Many programs come with a command ....**

   A- Copy their installation   **B-** Uninstall their installation

   C- Paste their installation   **D-** Compress their installation

4) **Removing unused programs leads to ....**

   A- Slowing down the computer   **B-** Saving storage space

   C- Difficulty in using the device   **D-** Stopping the computer

5) **When the operating system automatically detects a new peripheral device, it ....**

   A- deletes the driver for the peripheral device

   B- install the appropriate driver for the peripheral device

   C- shut down the computer

   D- restart the computer

6) **To install a new peripheral device, it is required to provide ....**

   A- Information and data   **B-** Drivers   **C-** Folder   **D-** Images

7) **Modern operating systems include a list of ………...... for many accessory devices.**

   A- Malware   **B-** Viruses   **C-** Songs   **D-** Drivers

8) The Plug and Play feature is ....

    A- The operating system deletes the correct and appropriate driver for the new peripheral device

    B- The operating system installs the correct and appropriate driver for the new peripheral device

    C- The operating system copies the correct and appropriate driver for the new peripheral device

    D- The operating system shuts down the computer

<u>2- Place a check mark (✓) preceding the correct statement and a check mark (✗) preceding the incorrect statement</u>

1) While you are preparing and getting ready to implement your project on your computer, you must make sure that the required programs are on the device. ( )

2) Many programs come with their own removal or uninstallation command. ( )

3) To uninstall the program, use the Control Panel. ( )

4) The operating system helps you uninstall the program. ( )

5) Removing unused programs increases the storage space on the disk. ( )

6) Operating systems support many devices attached to the computer such as the printer and webcam. ( )

7) When the operating system automatically detects the new peripheral device, it installs the appropriate driver for the peripheral device. ( )

8) Modern operating systems do not include a list of drivers for many accessory devices. ( )

9) A driver is a file or files that the operating system installs to use the new peripheral device with its full features. ( )

3- Write the steps to install the program from a CD or DVD on the computer:

1-...

2-...

3-...

4- Write the steps to install the program from a file downloaded from the Internet on the computer:

1-...

2-...

3-...

5- Write the steps to install the program from a compressed file on the computer:

1-...

2-...

3-...

6- Write one of the ways to remove or uninstall the program to do this:

1-...

2-...

3-...

7- Write the steps to remove a program installed on the device through the control panel:

1-...

2-...

3-...

8- Write the steps to install a local printer (i.e. directly connected to the computer) that supports the plug and play feature

1-...

2-...

3-...

9-Write the steps to install a printer that does not support the Non–Plug and Play Printer feature

1- ....

2- ....

3- ………………………………………………………….

Lesson 5
(Email)

Lesson 5   E-mail

Objectives:

By the end of the lesson, I will be able to:	After the lesson, check the correct box: I can .....
- Explain the components of an email.	☐ Very good ☐ Ok ☐ Need more work
- Practice the steps for composing an email.	☐ Very good ☐ Ok ☐ Need more work
- Discuss the services provided by e-mail in dealing with websites.	☐ Very good ☐ Ok ☐ Need more work

Engage

How can you create your personal email account?

Learn

In previous years, you have learned about some email service providers that provide you with the service of creating an email. In this lesson, you will create an email through one of the free email service providers, and use it to send and receive email messages to your teacher or one of your friends.

Definition of Email

• It is a digital communication system used to send and receive messages between users over the Internet.

• It is one of the cloud computing tools.

• It is used to share texts, files, images and other information.

• It is one of the most popular means of communication in the world.

• It is one of the indirect communication tools.

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Components of E-mail address

An email address consists of three main components:

1- User name:

It is the part that is located at the beginning of the email address, and it is a name that the user chooses and specifies. The user name is a unique and distinctive name that is not reserved by anyone else.

2- The @ symbol (at sign):

It is a symbol that separates the user name from the name of the email server (domain name) used.

3- Domain name:

It is the name of the email server that hosts the email account and is a place to store your email messages.

Advantages of using email

• **Speed:** Sending and receiving messages very quickly.

• **Cost:** Free in most cases.

• **Ease:** Easy to use with the ability to send a message to any number of recipients at the lowest cost.

• **Diversity:** Texts, files, images and other information can be shared.

• **Reliability:** Messages arrive reliably in most cases.

• **Digital services:** Registration is done using email on the websites of service providers and digital products online.

Drawbacks of using email

• **Hacking:** It can be hacked by hackers.

• **Spam:** You may receive unwanted messages.

• **Fraud:** You receive fraudulent messages.

• **Viruses:** Some emails may contain viruses or malware.

• **Privacy:** Emails may not be completely secure.

Providers of Email Services

There are many free email providers available such as:

- Gmail
- Yahoo Email
- Hotmail/Outlook

Create an email on Google

- **Google offers you many electronic services, including the email service. To create an email through the Gmail service and obtain other Google services, you must create a Google Account.**
- **A Google Account consists of a user name and a password.**

Advantages of creating a Google Account

- **Creating a Google Account enables you to log in to the Gmail email service.**
- **A Google Account also enables you to use other Google features and services such as:**

Google Meet, Google Docs, Google Drive, and YouTube.

Steps to create a Google Account

(1) Download the Google website https://www.google.com.eg
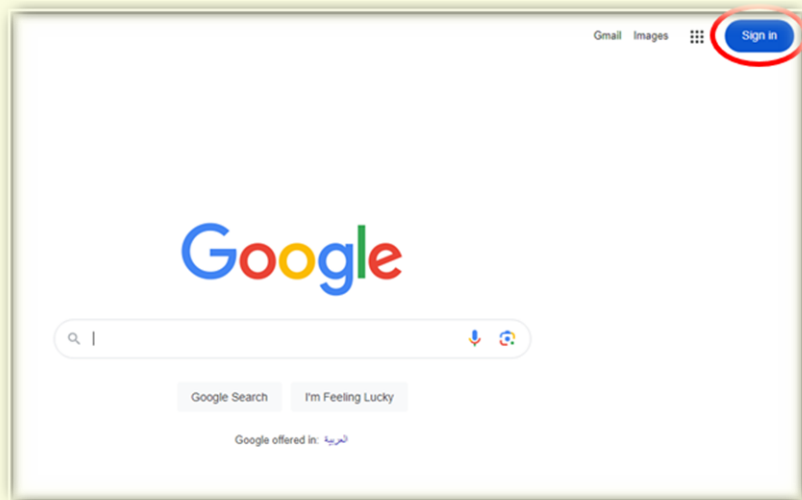
(2) Click Sign in
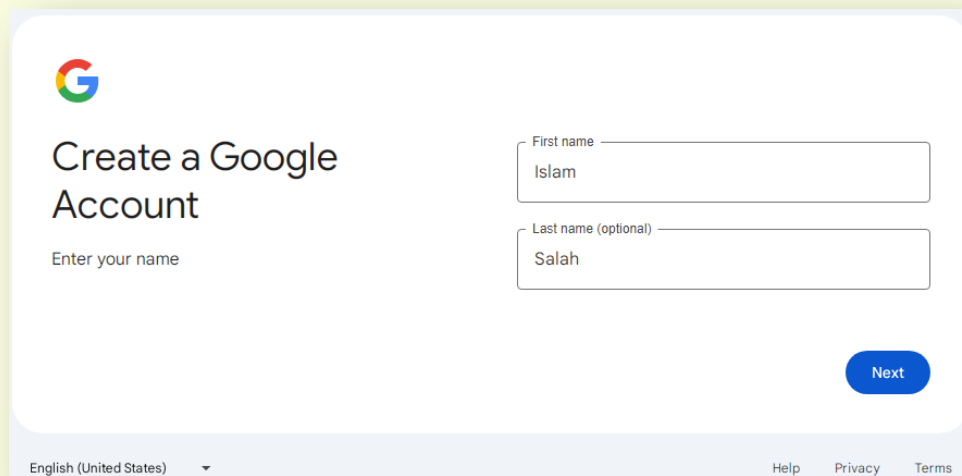
(3) Choose Create Account
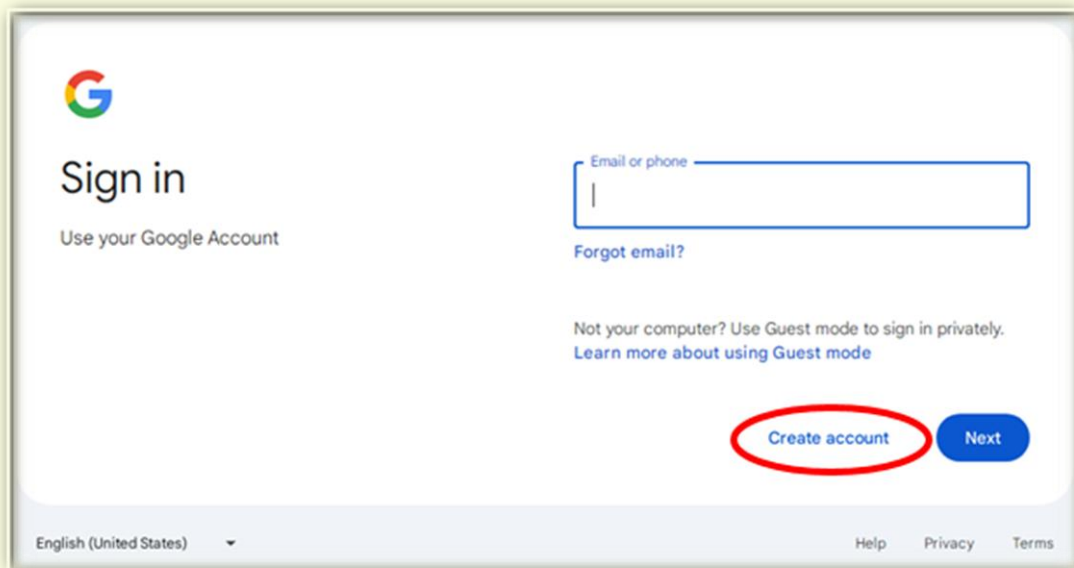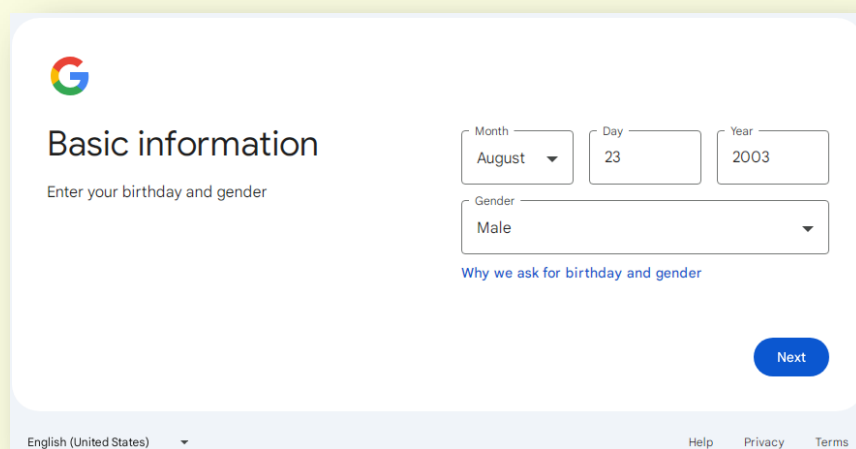
(4) To establish a Google account, choose "Create my personal account ".

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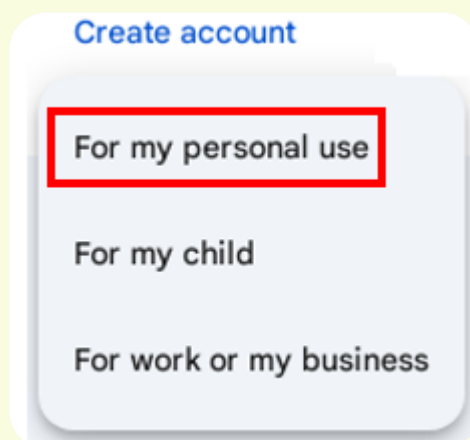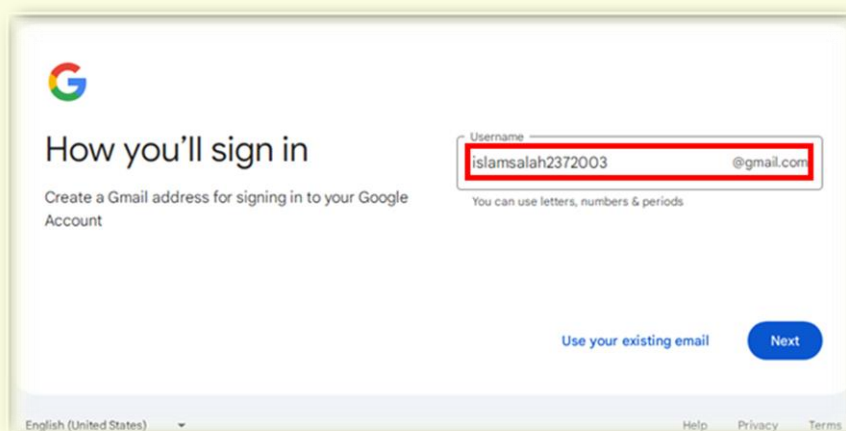
(5) Insert your 'First name' and 'Last name', then click the 'Next' button.
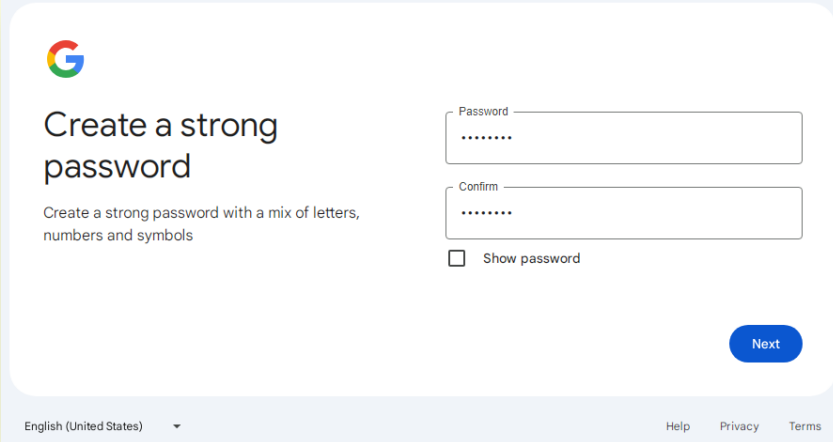
(6) Enter your date of birth and gender, then click 'Next'.

(7) Type the username you want in the 'Username' field and then click 'Next'.
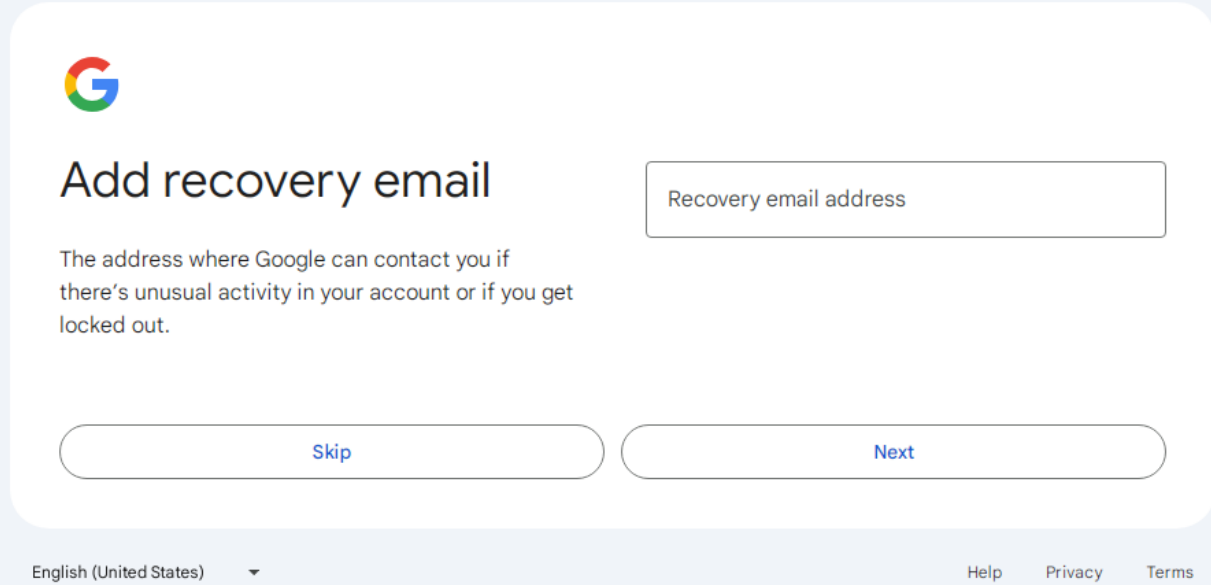
(8) Choose the password you want, and confirm it again, making sure that it is difficult to guess.
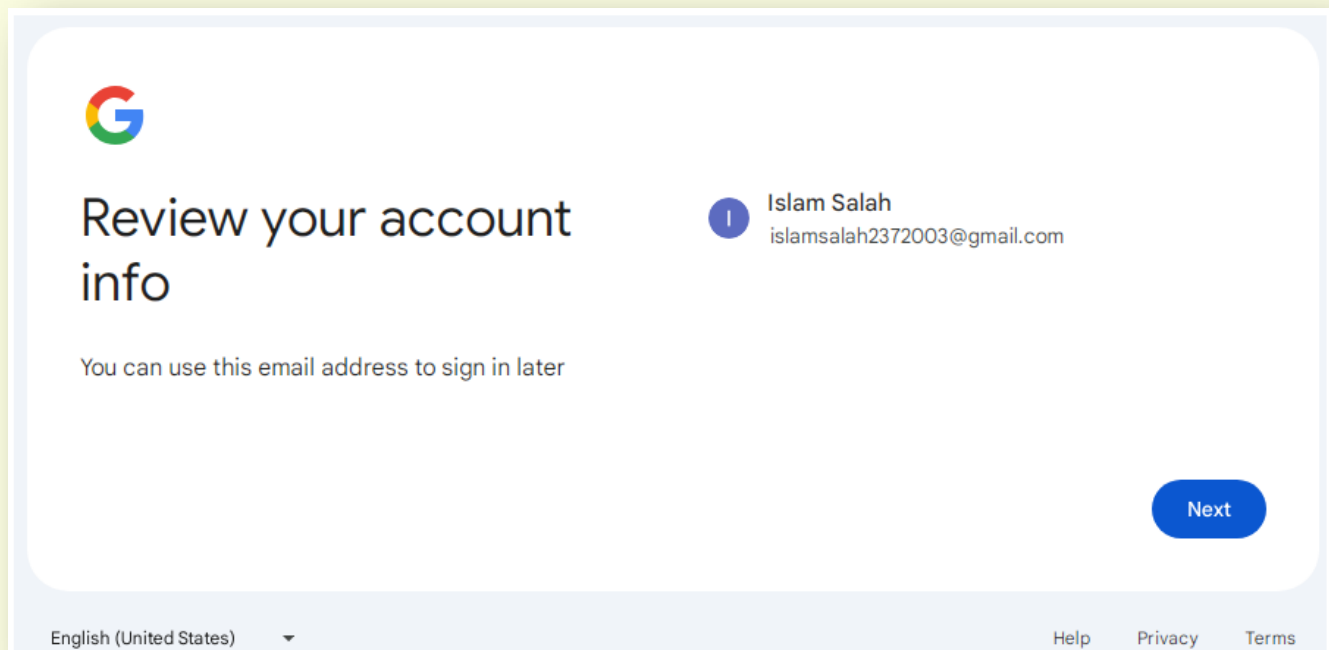
(9) Enter an alternative email address used to recover the account and you can skip this.

(10)   Check and confirm your email address.

G

Review your account info

You can use this email address to sign in later

I   Islam Salah
islamsalah2372003@gmail.com

Next

English (United States) ▼   Help   Privacy   Terms

(11) To complete the steps to create your email, review the terms of service and click 'I agree' if you accept them.

(12) Now that you have a 'Google Account' (username and password), you can use your 'Google Account' to access your email or many of the services provided by 'Google'.
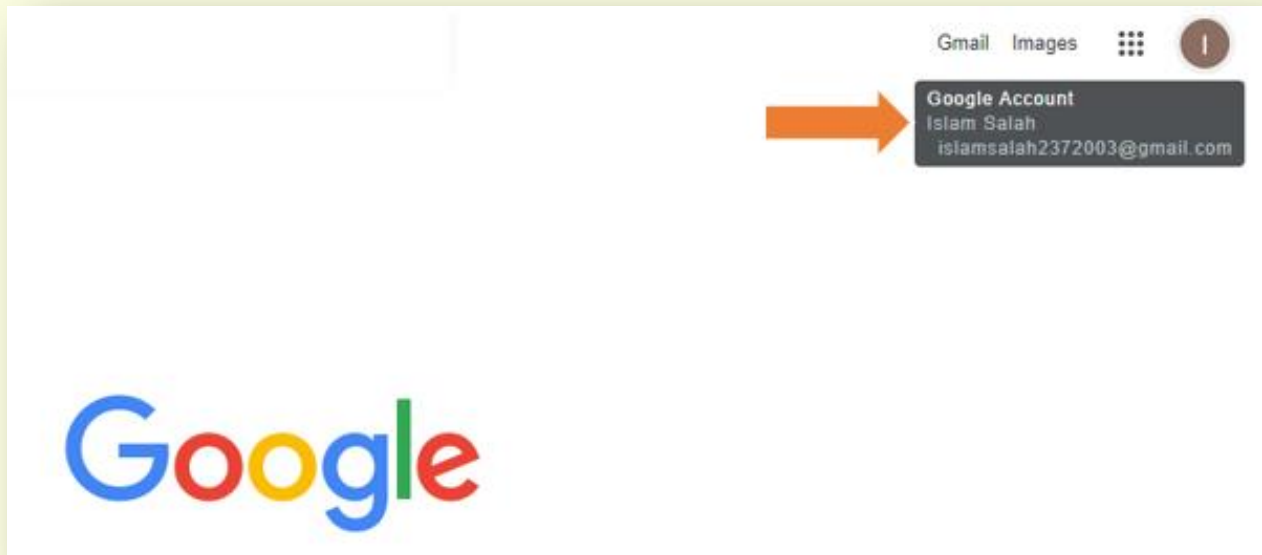
Gmail email interface

The default appearance of the Gmail email window is as follows:
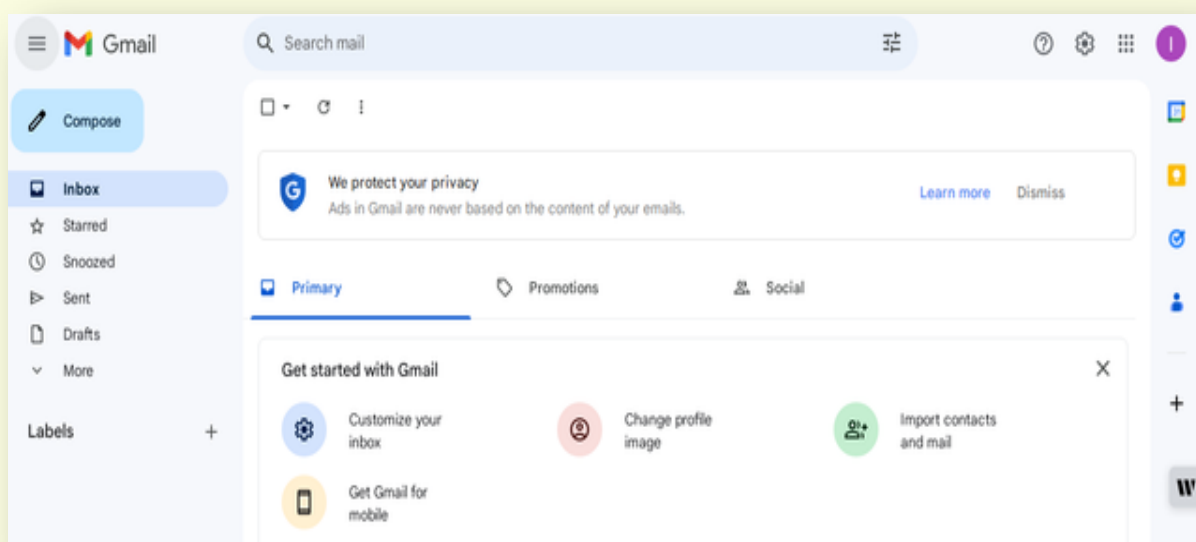
The interface language can be modified by selecting the settings icon and then choosing 'See all settings'.
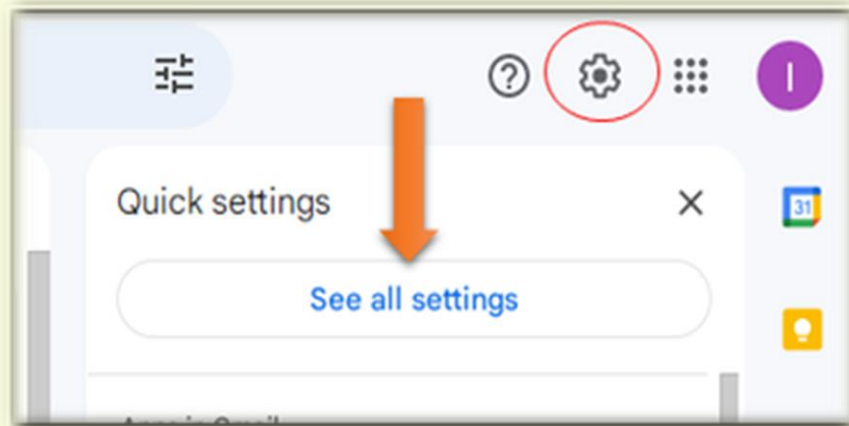
From the "General" menu, select the Arabic language under "Gmail display language".
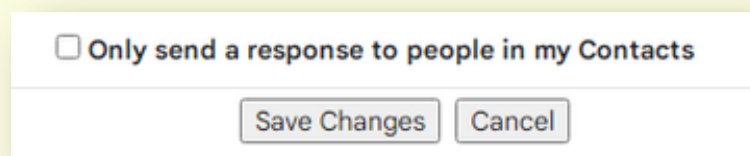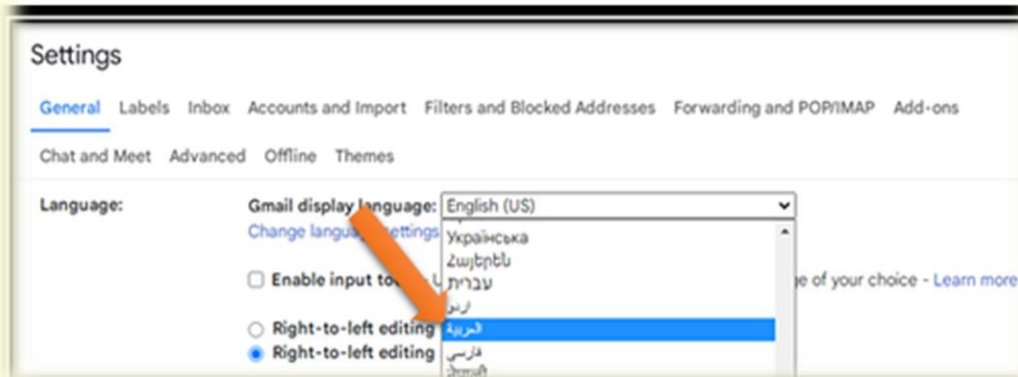
When you choose the Arabic language and click the **'Save Changes'** button, the **Gmail** email window interface appears in Arabic as shown below:
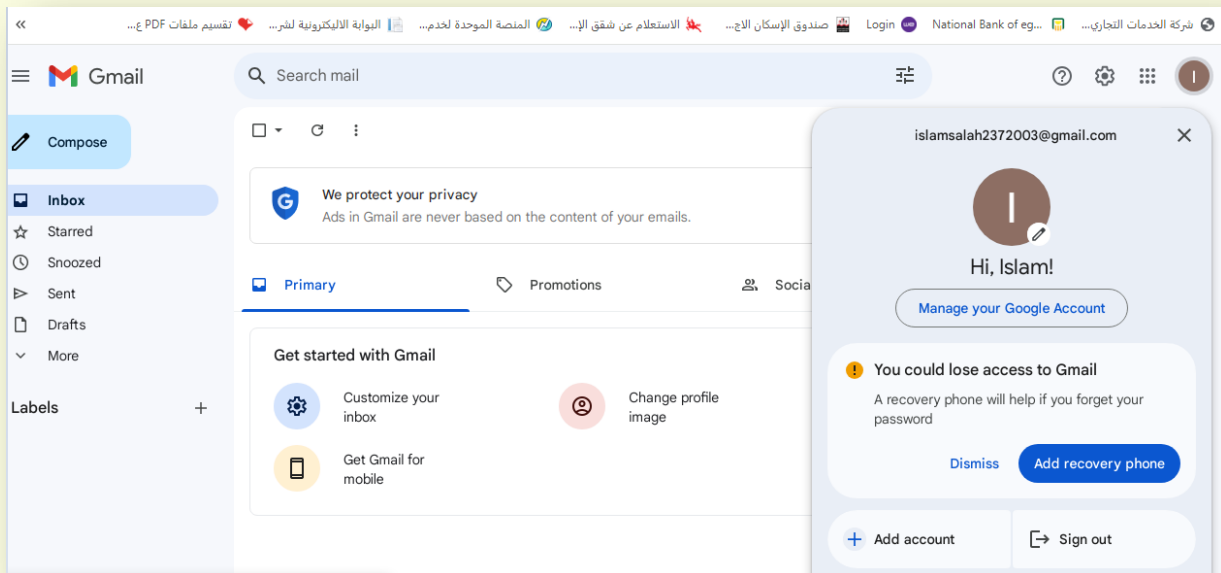
Sign out of your Gmail account

Click on your profile picture icon and then choose 'Sign out'.

For
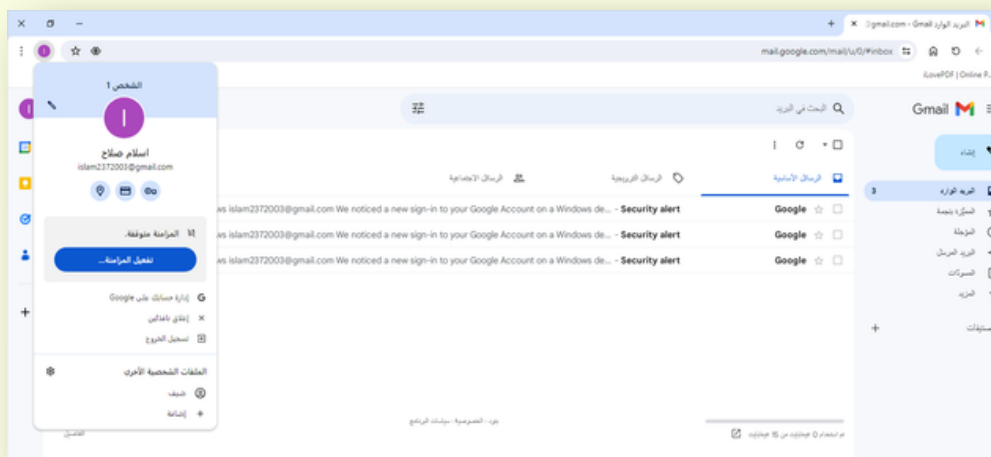
additional activities and exercises, please turn to the activity booklet (Activity No. 1-2).

Self-assess

Go to the objectives at the beginning of the lesson.

Check the correct, I can........ box.

1-Choose the correct answer from the options provided:

1) **Email is a..............**

   A- manual communication system   **B-** digital communication system

   C- direct communication system   **D-** virus system

2) **Through email, you can ……….**

   A- delete files   **B-** use cloud computing applications

   C- install programs   **D-** print files.

3) **One of the most important uses of email is ....**

   A- scan papers   **B-** to share information.

   C- cyberbullying   **D-** delete files on your device

4) **One of the advantages of using email is ....**

   A- speed in sending and receiving messages very quickly**.**

   B- spam

   C- fraud

   D- viruses

5) **Email is considered ....**

   A- one of the direct communication tools.

   B- one of the indirect communication tools.

   C- manual communication system

   D- text file

6) **One of the disadvantages of using email is …………...**

    A- Speed   **B-** Cost   **C-** Ease   **D-** Hacking

7) **From email service providers ………….**

    A- Gmail   **B-** Paint   **C-** Google Docs   **D-** YouTube

8) **To get one of the Gmail services, you must create ……….**

    A- Text file   **B-** "Google Account"

    C- Presentation file   **D-** "Google Meet"

9) **To log out of your Gmail account, click on the ………….. icon.**

    A- Sign in   **B-** Sign out   **C-** Shutdown   **D-** Close

- <u>The email address consists of:</u>

1- ....

2- ....

3- ....

Lesson 6

(Cloud Computing)

Cloud Computing

Objectives:

By the end of the lesson, I will be able to:	After the lesson, check the correct box: I can .....

By the end of the lesson, I will be able to:

- Explain the importance of cloud computing in accomplishing my tasks.

- Discuss the areas of use of cloud computing in our lives.

- Practice uploading my files to cloud computing and sharing them with my colleagues.

After the lesson, check the correct box:
I can .....

☐ Very good   ☐ Ok   ☐ Need more work

☐ Very good   ☐ Ok   ☐ Need more work

☐ Very good   ☐ Ok   ☐ Need more work

Engage

Which digital tools and applications are used for creating and sharing files with your teacher and classmates?

Learn

Cloud computing

In previous years, I learned about the concept of "Cloud Computing".

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Cloud computing:

It is a model for providing digital services over the Internet. Such as:

• Cloud storage service or computer storage: is storing files and folders over the Internet.

• Software service (applications) over the Internet: is making software (applications) available over the Internet.

• Electronic resource sharing service: is sharing and exchanging files with others over the Internet.

For additional activities and exercises, please turn to the activity booklet
(Activity No. 1)

Benefits of Cloud Computing:

1- Ease of access: Cloud computing services can be obtained without the need to own a computer or mobile phone, ... with high specifications, whether as hardware or software components.

2- Availability of the service: The user can access his data, files and applications from anywhere where the Internet service is available.

3- Reducing material costs:

a. There is no need to purchase software licences.

b. There is no need to purchase hardware components with high specifications.

4- Sharing digital resources with others.

For additional activities and exercises, please turn to the activity booklet
(Activity No. 2)

Areas of using cloud computing applications in daily life:

Some examples of areas of using cloud computing applications in daily life

1-Communication:

• **Email:** Use cloud email such as Gmail, Outlook, and Yahoo Mail daily to communicate with family, friends, and colleagues.

• **Social networking:** We communicate with others and share content on social media platforms such as Facebook, Twitter, and Instagram

• **Messaging services:** We use messaging applications such as WhatsApp and Telegram to communicate and share files and photos.

2-Computer storage:

• **File storage services:** We use services such as Google Drive and One Drive to store, share, and access files at anytime and anywhere.

• **Data backup:** We use cloud backup services to protect our data from loss in case of any damage happens to our devices.

3-Producing projects by using:

• **Word processing programs:** We use cloud word processing programs such as **Google Docs**, **Microsoft Word Online** to create, edit and share documents with others.

• **Spreadsheets:** We use cloud spreadsheets such as **Google Sheets** and

Microsoft Excel Online to organize and analyze data and create charts.

4-Education:

• **E-learning platforms:** We use e-learning platforms to access educational materials and interact with teachers and students such as the Ministry of Education platform.

• **Collaboration tools:** We use cloud collaboration tools such as **Google Classroom** and **Microsoft Teams** to work on projects and assignments with others.

5-Entertainment:

• **Video streaming services:** We enjoy watching movies, TV shows and programs on video streaming services such as **YouTube**.

• **Video games:** We play video games online on cloud platforms.

• **Cloud music services.**

6-Other areas:

• **Online shopping:** We shop through e-commerce sites.

• **Online banking:** We use online banking to transfer money and pay bills.

• **Healthcare services:** Cloud computing is used to store medical records.

Data processing and storage in cloud computing

Data processing and storage in cloud computing depends on a huge infrastructure, the steps of data processing and storage in computing can be summarized as follows:

1- **Data collection** from different sources.

2- **Data transfer** to cloud data centers.

3- **Data processing** in cloud data centers and through powerful servers.

4- **Data storage:** Data is stored on high-capacity storage units in cloud data centers.

5- **Data management:** Data is managed by database management systems in cloud data centers.

6- Data access: Data can be accessed by users and applications through the Internet

Requirements to obtain cloud computing services:

1- A computer or mobile phone.

2- An internet browser or application.

3- An internet connection.

4- Create an account with one of the computing service providers.

The most famous cloud computing service providers:

• Amazon Web Services

• Microsoft Azure

• Google Cloud Platform

For additional activities and exercises, please turn to the activity booklet .(Activity No3)

Self-assess

Go to the objectives at the beginning of the lesson.

Check the correct, I can........ box.

1- Choose the correct answer from the options provided:

1- Cloud computing is known as a model for providing ....

   A- Presentations   **B**- Digital services over the Internet.

   C- Google Docs   **D**- Google Classroom

2- The computer storage service is ....

   A- Storing files and folders locally on the computer.

   B- Storing files and folders over the Internet.

   C- Sharing and exchanging files

   D- Google Classroom

3- The software and application service over the Internet is known as ....

   A- Enabling the use of software and applications over the Internet.

   B- Enabling the use of software and applications without the Internet.

   C- Sharing and exchanging files locally

   D- Email service

4- The service of sharing electronic resources via computing is known as ....

   A- Computer storage

   B- Sharing files and folders locally on the computer.

   C- Sharing and exchanging files with others over the Internet.

   D- Email sharing

5- Communication is one of the areas of using cloud computing in daily life, and is done through ....

A- Email   **B**- Software and applications.

C- Computer storage   **D**- Google Sheets

6- Services for storing, sharing and accessing files at any time and from anywhere are called ....

A-Email   **B**-Software and applications.

C- Computing storage   **D**- Google Sheets

7- We use cloud word processing programs such as ……….

A-Google Docs   **B**- Google Sheets

C- Google Classroom   **D**- Google Cloud Platform

8- We use cloud spreadsheets such as …………

A-Google Docs   **B**- Google Sheets

C- Google Classroom   **D**- Google Cloud Platform

9- We use cloud collaboration tools such as ………….

A-Google Docs   **B**- Google Sheets

C- Google Classroom   **D**- Google Cloud Platform

10- The most famous cloud computing service providers are ………

A-Google Docs   **B**- Google Sheets

C- Google Classroom   **D**- Google Cloud Platform

Think and answer

1- Write 3 benefits of cloud computing:

1-..

2-..

3-..

2- Write 3 areas of using cloud computing in daily life:

1-..

2-..

3-..

3- Write the steps for processing and storing data in cloud computing:

1-..

2-..

3-..

4-………………………………………………………….

5-………………………………………………………….

6-………………………………………………………….

Lesson 7

(Google Meet and Project Management)

Lesson 7 | Google Meet and Project Management

Objectives:

By the end of the lesson, I will be able to:	After the lesson, check the correct box: I can		
▪ Create a meeting with my colleagues via Google meet	☐ Very good	☐ Ok	☐ Need more work
▪ Follow the correct procedures for digital communication with my colleagues	☐ Very good	☐ Ok	☐ Need more work
▪ Share files with my colleagues via the Google meet application	☐ Very good	☐ Ok	☐ Need more work

Engage

What digital applications did you were study in previous classes for communication with colleagues and friends, and how did you use them?

Learn

In the previous lessons, you learned about some digital transformation tools, including collaboration and direct communication tools between users to make video calls and online conferences, to exchange data, information and ideas and to produce projects, as you can use them to communicate with others face to face. Examples of these include the "Google Meet" application, which is one of the services provided by Google. In order to access the "Google Meet" service, you must have a "Google account", which you previously created in Lesson 4.

Google Meet

It is a video conferencing service developed by Google that enables users to conduct group video calls, share screens, chat, collaborate in real time, and work together on joint projects among students.

How can you access "Google Meet"?

• From your PC via the link https://meet.google.com

• By downloading the "Google Meet" application for Android devices using the Google Play Store.
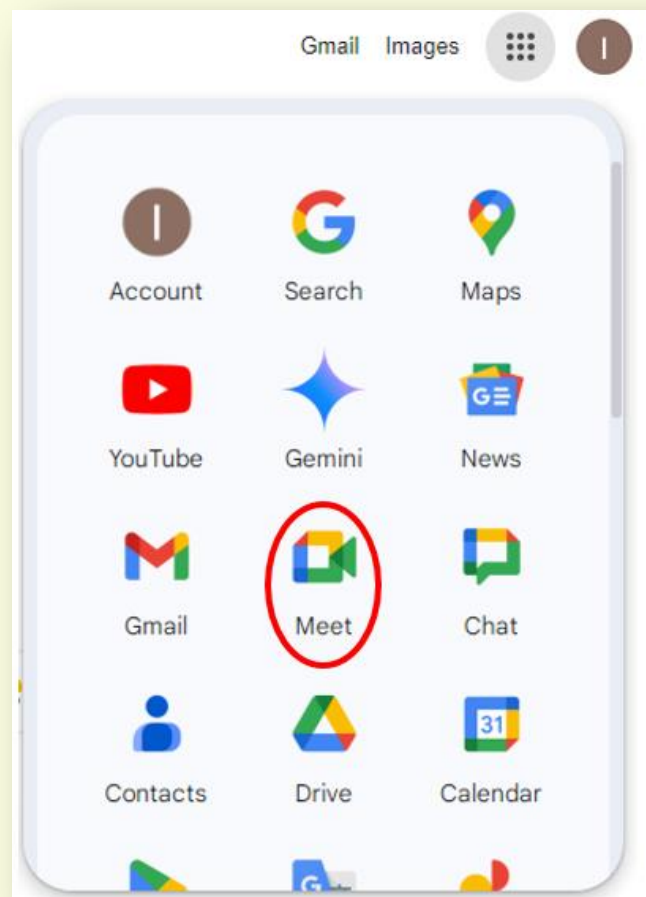
Launch the program using the Google Apps icon.

For additional activities and exercises, please turn to the activity booklet (Activity No. 1)

.

Create a meeting from "Google Meet":

        To create a meeting from "**Google Meet**" there are several options through which you can hold a meeting.

First - You can start an instant meeting in "Google Meet" by:

Going to the main page of the "**Google Meet**" application and follow these steps:

1. Click on the "New meeting" button.

2. Click on Start an instant meeting.
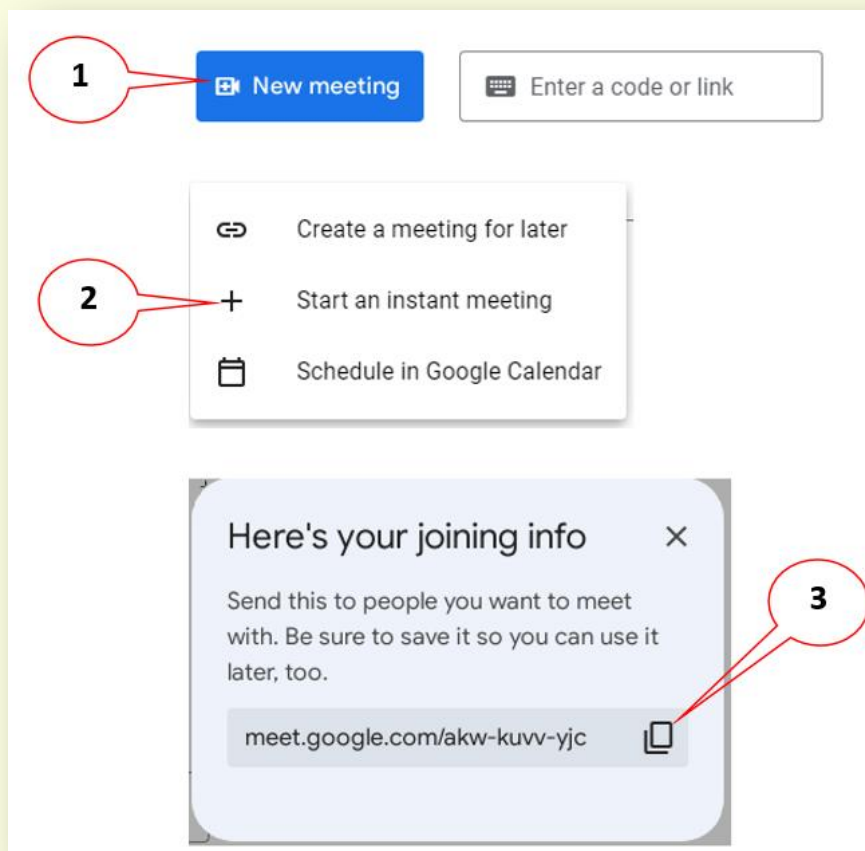
3. Click on the copy icon ⧉ to share the meeting link.

4. Send the meeting link to the participants via one of the communication tools (email - WhatsApp ...)

For additional activities and exercises, please turn to the activity booklet .(Activity No. 2)

Second - Create a meeting for a later time:

The "Google Meet" application also enables you to create a meeting for a later time, and keep its link until the time you want to meet with whomever you want to invite to attend:

• Follow the same previous steps to create an instant meeting

• Click on "Create a meeting for a later time".

• A small window will appear with a link to the session.

• Copy the meeting link.

• Send the link to the people you want to hold the meeting with.

Sometimes, you may need to approve the request of invitees to join the session, in other words, when the invitee tries to access your session, you will see a notification at the top of the page through which you can accept or reject the person's joining.

Joining a meeting in "Google Meet"

If you are invited to attend a meeting session using "Google Meet", using a link:

• If the link is sent to you to join a session on "Google Meet", you can access the session by clicking on the link directly.

• Sometimes, when you click on the meeting link, it may take some time to join until the meeting organizer approves your request to join the meeting.

• If you are invited to a meeting through a link, you should not send the meeting link to someone else, and you must ask the meeting owner's permission.

During a Google Meet meeting

During a **Google Meet** meeting, whether you are the organizer or the invitee, you can use many options and features that help you follow the meeting in an organized, enjoyable, and useful atmosphere with the ability to control the session and invitees if you are the organizer.

<u>Here are some options and features you can use during the meeting:</u>

<u>General rules to follow during the meeting</u>

• While one participant is speaking, the rest of the participants must listen and turn off the microphone.

• **Raising your hand in the session to ask to speak**

help organize sessions, talk and intervene in an organized and smooth manner.

• When you are allowed to speak, the microphone icon will open and you can speak.

• **Send messages in the session to participants**

While you are in a **Google Meet** session, you can communicate with the attendees by sending messages to the participants in the session by clicking on the "**In call messages**" icon at the bottom of the page.
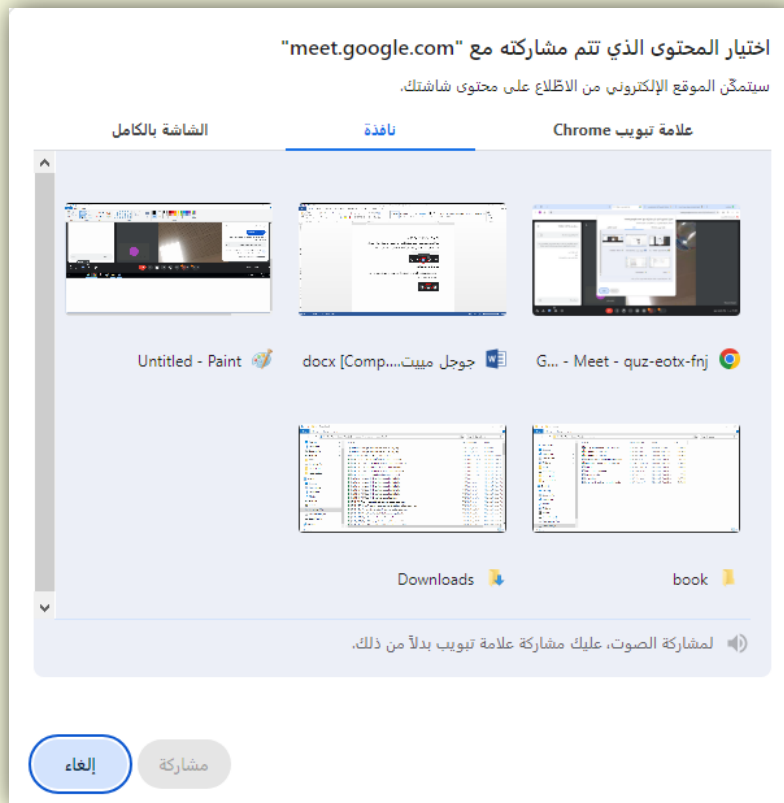
• **Sharing the presentation with participants**

You can share your entire screen with participants or a specific window at the bottom of the page, click on ⬆ the "**Share screen**" icon now
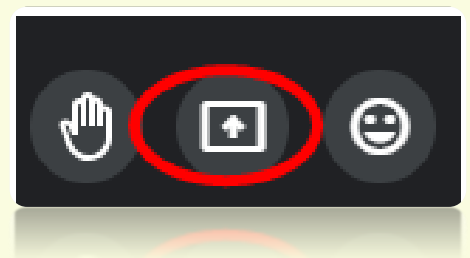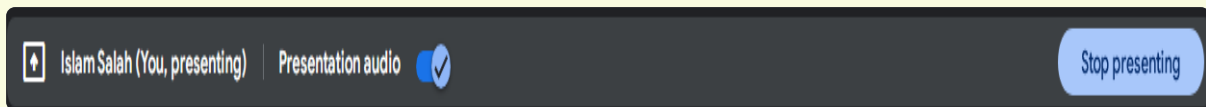
Click on one of the tabs (entire screen, window or tab) and then click on the Share button.

• **Stop sharing presentation**

In the Google Meet window, click "Stop sharing."

For additional activities and exercises, please turn to the activity booklet

(Activity No. 3)

Self-assess

Go to the objectives at the beginning of the lesson.

Check the correct, I can........ box.

Learn by doing

1- Choose the correct answer from the options provided:

1- "Google Meet" is …………...

    A- Audio-only service   **B**- Voice-only service

    C- Storage service   **D**- Video conferencing service

2- Through …....... you can make calls, group video, share screens, and chat.

    A- "Google Account"   **B**- "Google Docs"

    C- "Google Meet"   **D**- "Google Drive"

3- To access the "Google Meet" service, you must have ……….

    A- "Yahoo account"   **B**- "Google account"

    C- Bank account   **D**- Electronic wallet

4- The "Google Meet" application is considered one of the ways of .... communication.

    A- Indirect   **B**- Direct

    C- Slow   **D**- Difficult

5- One of "Google Meet" Features is...................

    A- Sharing screens   **B**- Talking at any time

    C- Indirect communication   **D**- Slow communication for audio and video

6- To express your opinion in an organized manner during a "Google Meet" meeting, you can click on ....

    A- Meeting link   **B**- Hand icon

    C- Talk at any time   **D**- Exit before the end of the meeting.

7- One of general rules that must be followed during the meeting is……

    A- Talking at any time

    B- Listening, hearing and turning off the microphone

    C- Giving the meeting link to anyone

    D- Leaving before the end of the meeting.

8- To invite others to a Google Meet meeting, you must send them ....

    A- Meeting address   **B**- Meeting link

    C- Meeting image   **D**- Your home address

9- To create a meeting next week through Google Meet, you choose …….

    A- Start an instant meeting   **B**- Meeting for a later time

    C- Stop sharing the presentation.   **D**- Sharing screens

10- You have been invited to a Google Meet meeting, to join the meeting you must click on ………….

    A- Meeting address   **B**- Meeting link

    C- Meeting image   **D**- Your home address

11- To express your opinion in an organized manner during a Google Meet meeting, you can ....

    A- Speak at any time   **B**- Leave before the meeting ends.

    C- Send a message   **D**- Stop sharing the presentation.

12- When you are invited to a meeting through a link, you must ………......

    A- Do not send the meeting link to others   **B**- Speak without permission.

    C- Send the meeting link to anyone   **D**- Leave the meeting

13- When you finish showing your screen during the meeting, you must click ....

    A- Do not send the meeting link to others   **B**- Talk without permission.

    C- "Stop sharing the presentation"   **D**- Share screens

14- During a "Google Meet" meeting, and to organize the meeting, when speaking, you must ....

    A- Speak at any time   **B**- Raise your hand

    C- Leave the meeting   **D**- Send the meeting link to others

15- To help organize sessions, talk and intervene in an organized and smooth manner...................

    A- Leave the meeting   **B**- Listen to the speaker

    C- Speak at any time   **D**- Open the microphone

Lesson 8
(Database Design)

Lesson 8 — Database Design

Objectives:

By the end of the lesson, I will be able to:	After the lesson, check the correct box: I can .....
- Explain what big data is	☐ Very good ☐ Ok ☐ Need more work
- Identify the difference between creating a table using programs (Word-Excel -Access).	☐ Very good ☐ Ok ☐ Need more work
- Create a simple data table on Access.	☐ Very good ☐ Ok ☐ Need more work

Engage

How can you establish a database for your class? Which applications will you use for this purpose?

Learn

In previous classes, we studied the concept of databases and how to use a spreadsheet program and perform some simple mathematical operations on it, and the word processor program **Word** in preparing your CV or writing reports for your teacher. In this lesson, we will discuss one of the programs in the **Office** package (Access) that enables you to create a database.

Databases:

A collection of data and information organized and linked to each other. It is similar to a library in which books are kept, but instead of books, data and information are stored. A database is used to store and retrieve information easily and efficiently. Information is stored and managed digitally using dedicated programs and applications.

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The importance of databases in our lives:

1- Saving students' information at school including name, date of birth, home address, etc.

2- Saving medical records in hospitals including information like the patient's name, address, attending physician's name, and the date of patient's last visit.

3- Tracking inventory in stores including product name, manufacturer, manufacturing date, and price.

For additional activities and exercises, please turn to the activity booklet (Activity No. 1).

Advantages of using databases:

- **Organization:** Easy storage and retrieval of data.
- **Efficiency:** Quick access to data.
- **Accuracy:** Ensuring data validity and reducing errors.
- **Security:** Protecting data from unauthorized access.
- **Sharing:** Making data available to multiple users.

Uses of databases in:

- **Websites:** such as storing user and product data.
- **Data analysis:** such as analyzing big data and extracting knowledge.
- **Scientific research:** such as storing and analyzing experimental data.
- **Business applications:** such as customer relationship management systems, and enterprise resource planning systems.

Big Data

- The term Big Data refers to very large and diverse sets of structured, unstructured and semi-structured data that continue to grow significantly over time.

- These data sets are so large and complex in terms of size, growth rate and diversity that traditional data management systems cannot store, process and analyze them.

- The amount of data is increasing and growing rapidly due to the rapid development of digital technologies, such as artificial intelligence (AI), and the Internet of Things (IoT). As data continues to increase, expand, and spread, new big data tools are emerging to help companies collect, process, and analyze data at the speed needed to get the most out of it.

For additional activities and exercises, please turn to the activity booklet (Activity No. 2).

Data Table:

Concept of data table:

A data table is a basic element in building databases and is the only source of data within the database. A data table consists of rows and columns, where each row represents a single record of data, and each column represents a specific field of data.

Creating a Data Table:

Many programs can create data table, such as a "student grades" data table.

S	Student name	Arabic	English	Computer
1	Amro	19	18	19
2	Yasmine	20	17	16
3	Ramy	15	19	14
4	Samar	17	18	16

Programs used to create a data table:

With Word and Excel, you can create a data table, for example, create a data table for "student grades."

We find that in Word, you can create a simple table, but you cannot get a record of all students whose names include the letter "Y". Word is used to create a simple data table.

In Excel, you can arrange and sort student grades and perform simple calculations.

But Excel is difficult to use if you have a large amount of complex data.

Therefore, we find it more appropriate to use one of the applications dedicated to creating databases, such as **Microsoft Access**.

For additional activities and exercises, please consult the activity booklet .(Activity No. 3)

Microsoft Access:

It is one of the applications used to create databases. It builds a real database, where you can build a complex structure for data and manage it more efficiently.

When do we use Microsoft Access?

We use Microsoft Access when:

• You have a large amount of complex data.

• You need to create relations between data.

• You want to create custom applications to manage data.

• You need higher data security.

Dear student... You can create a database under the name "Student Results" by performing the following steps on your computer:

✓ Open the Microsoft Access application
✓ Create a database under the name "Student Results"
✓ Record the steps you have taken.

1- Open the Access application
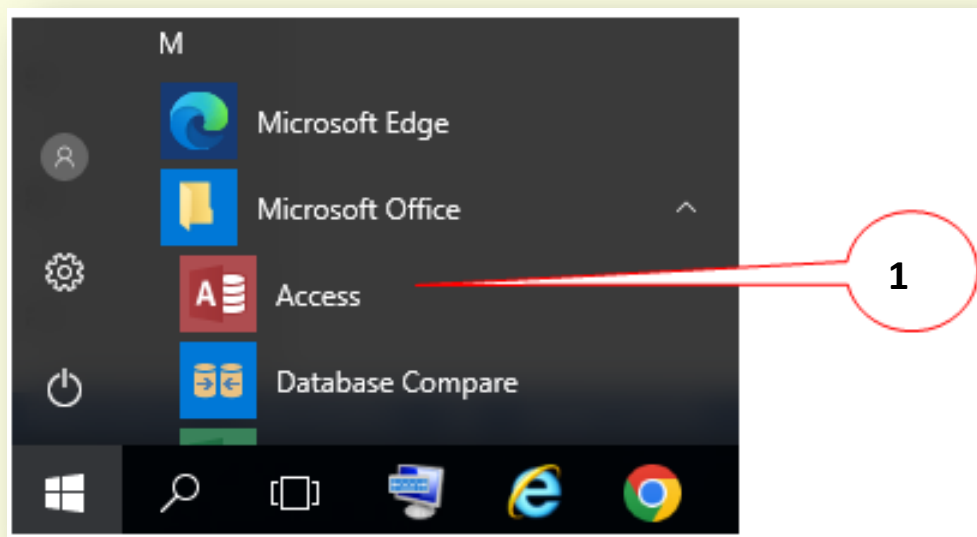
2.Choose Blank desktop database to create a new blank database
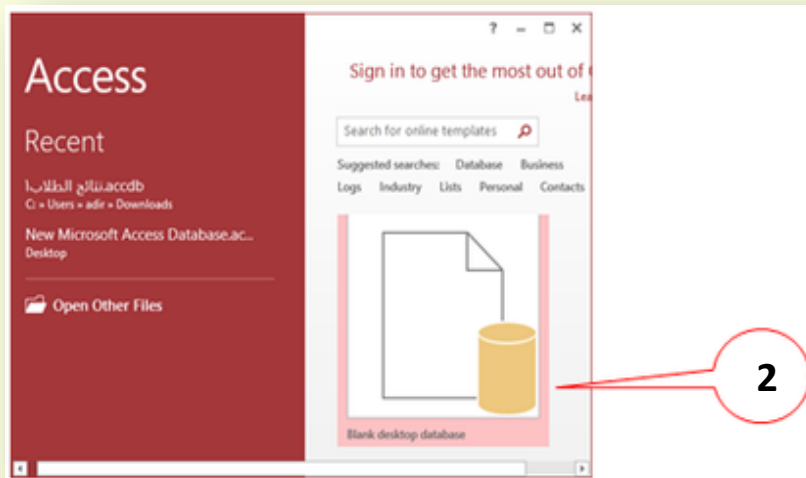
3- Type a name for the database, which is "Student Results"

4- Click "Create"

A database will be created under the name "Student Results"
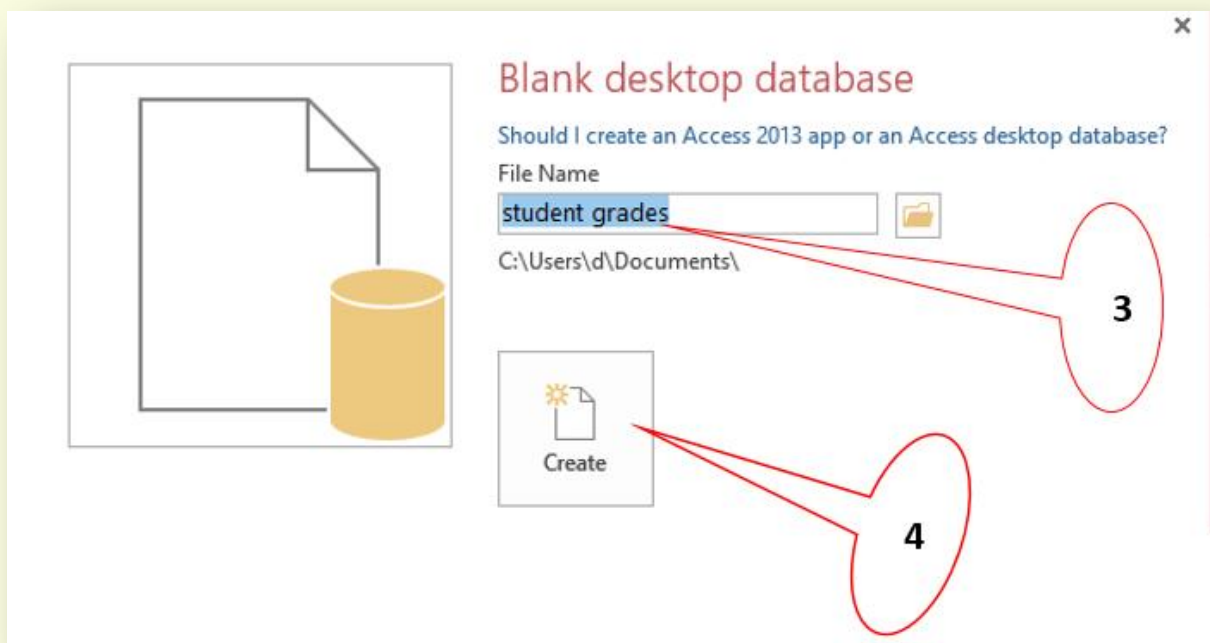
Steps to create a Table in Access:

You can create a Table in Access by doing the following:

A- Table Design: To write the names of the table fields and specify their data type.

B- Datasheet View: To enter and display the table data.

A- Table Design:

To choose the "Table Design" style, follow the following steps:

1- Choose "CREATE".

2- Choose the "Table Design".
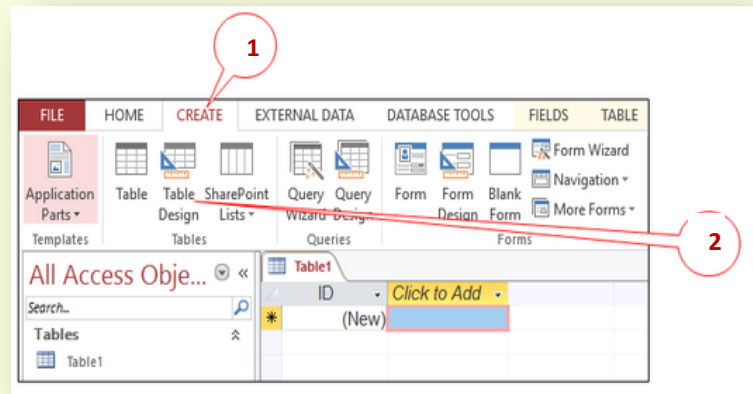
Table Design Window Interface:

The Table Design window opens, and consists of:

1- To write the field name
2- To choose the statement type
3- Design display style
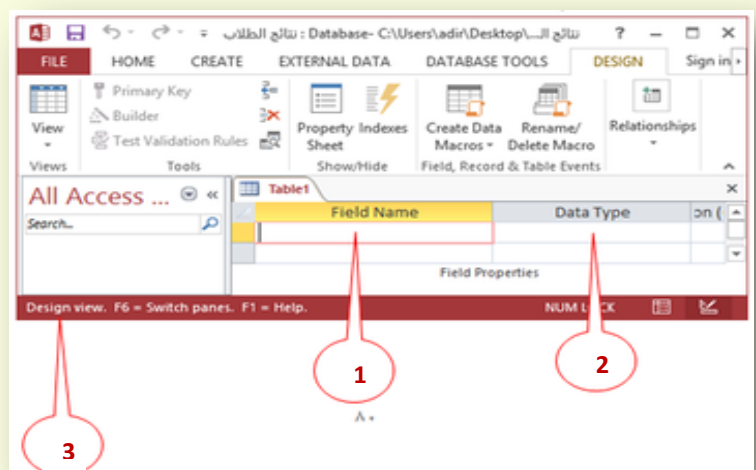
Window of Table Design

Example of steps to design a "student grades" table:

In the table design window, the table fields are created by typing the field name, selecting the field statement type.

- Type the following field names and choose their statement type:

• Student number field which is id

• Name

• Arabic grade

• English grade

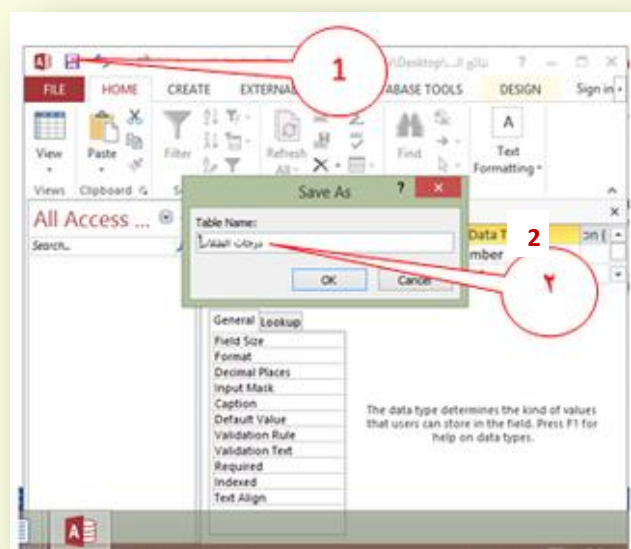• Computer grade

1- Type the field name "id" student number
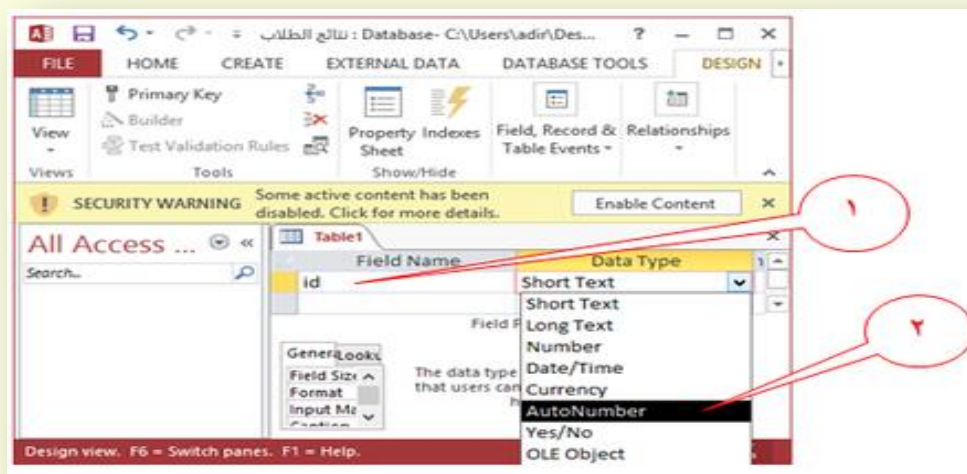
2- Choose the field statement type from the drop-down list "AutoNumber".

3- Write the rest of the field names, and select the appropriate statement type for each field.

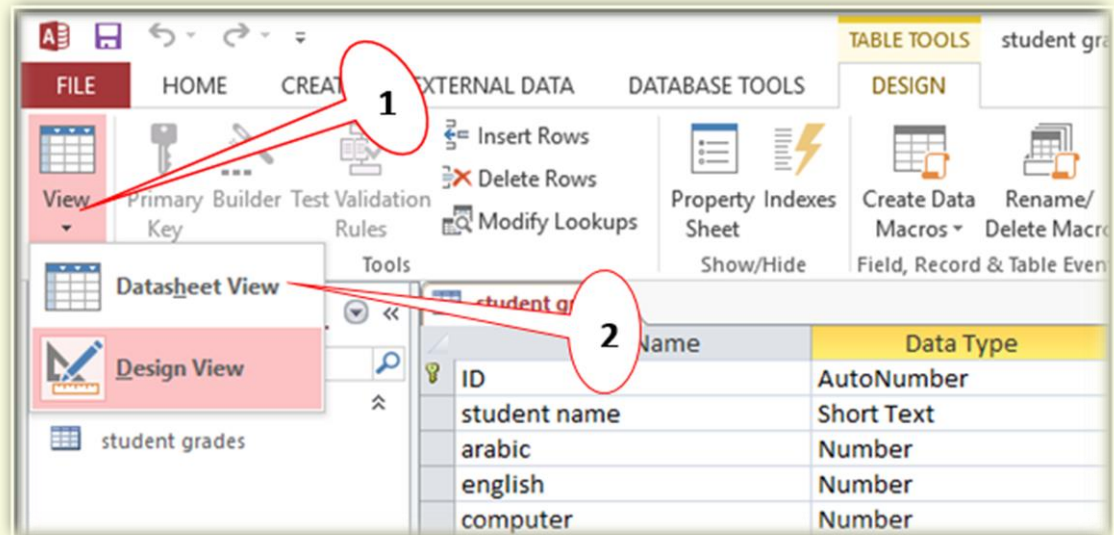## Save the table:

1-Click the Save icon

2-Type the table name "Student Grades"

B- Datasheet View

To enter and view the table data.

1- Choose "View"

Window of Datasheet View

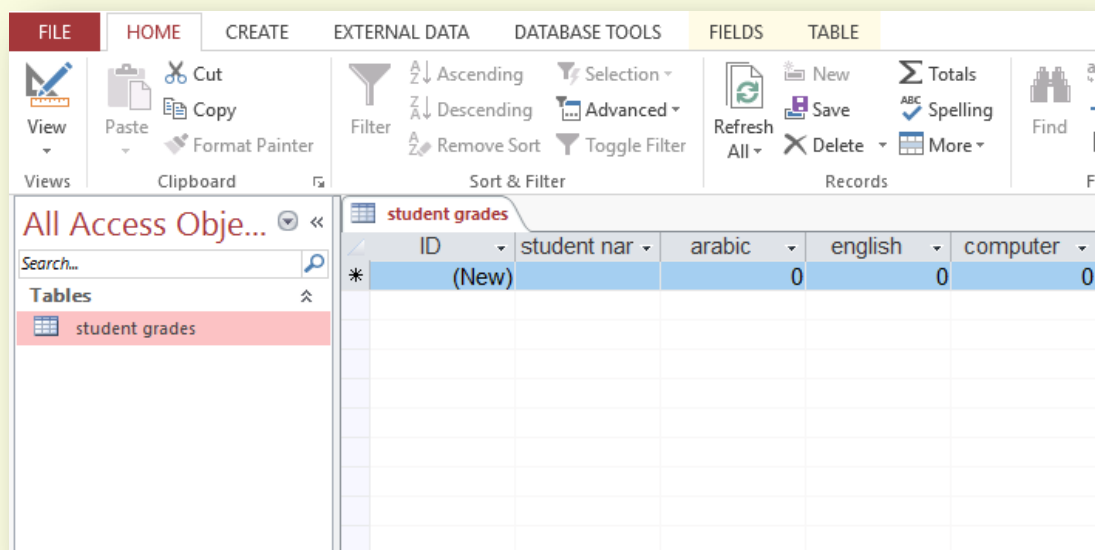2- Choose "Datasheet View", and the data view window will appear.

3- The following window will appear:

4- Enter your data and your colleagues' data in the table.

5- To return to the design mode from "View", select "Design View".

For additional activities and exercises, please turn to the activity booklet .(Activity No. 4-7)

Primary Key:

It is a field in a database table that is used to uniquely identify each record in that table, and the primary key value is never repeated within the same table.

<u>Primary Key for the "Student Grades" table</u>: The "id" field was chosen as the primary key because it is an automatic number given to the student, and
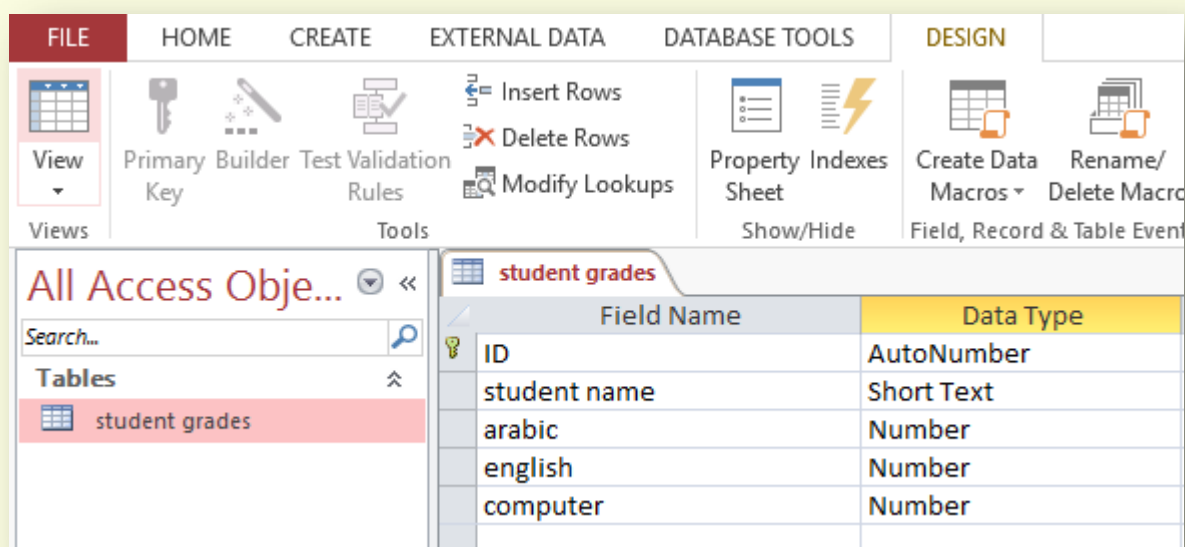
each student has a unique number that is not repeated with any other student.

Make the "id" field the Primary Key for the "Student Grades" table.

Self-assess

Go to the objectives at the beginning of the lesson.

Check the correct, I can........ box.

1- Place a check mark (✓) preceding the correct statement and a check mark (✗) preceding the incorrect statement.

1. Databases are a collection of data and information that are not related to each other. ( )
2. Databases are information stored and managed manually using dedicated programs and applications. ( )
3. A database is an organized collection of data related to a specific subject. ( )
4. Databases are used to save student data in school. ( )
5. We use databases to track inventory in stores. ( )
6. It is difficult to use databases on websites. ( )
7. A data table is a non-essential element in building databases. ( )
8. A data table is the only source of data within a database. ( )
9. In a data table, each row represents more than one record of data. ( )
10. We use Microsoft Access when we have a large amount of complex data. ( )
11. We use the "Design View" of the table to write the names of the table fields and determine the type of data. ( )
12. We use the "Data View" of the table to enter and display the table data. ( )
13. We determine the type of data for the student name field as "Text" to perform calculations on it. ( )
14. We specify the type of the data of the degrees fields as "Number" to perform a calculation on it. ( )
15. In the database table, we must specify for each column the type of data it contains. ( )
16. The primary key field is used to uniquely identify each record in the table. ( )
17. The primary key value can be repeated within the same table. ( )

Lesson 9

(Forms & Queries)

Lesson 9 | Forms & Queries

Objectives:

By the end of the lesson, I will be able to:	After the lesson, check the correct box: I can		
Explain the steps to implement a Form in databases.	☐ Very good	☐ Ok	☐ Need more work
Perform a Query in the databases that I implemented.	☐ Very good	☐ Ok	☐ Need more work
Use the operations (add field - hide field from the query result) for the database.	☐ Very good	☐ Ok	☐ Need more work

Engage

How can you create a database for your class? Which applications will you use for this purpose?

Learn

First: Forms in databases:

Form:

It is a graphical interface designed specifically to interact with data stored in the database. It is a screen that displays specific information from the database and allows the user to enter, modify or delete this information in an organized and convenient way.
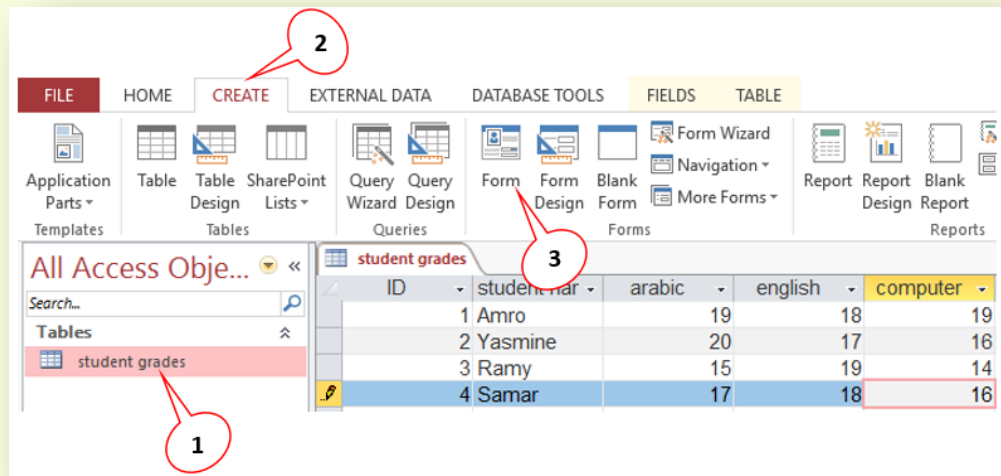
Create a form:

A new form can be created under the name "Enter Student Grades" using the Form Wizard.

Example: To create a form from the current table "Student Grades"

1-Click on the table name "Student Grades" in the **Navigation Pane** on the left of the screen, and the data for the "Student Grades" table will appear on the right of the screen.

2- Choose the Create tab.

3- Click Form.

The Access program creates the form, and through the form the data for each student's record is displayed individually, as in the following figure:

1- The current window is called **Layout view**, where the data of the first record is displayed.

2- Click on the **"Next record"** icon to display the data of the next record.

3- Click on the **"Last record"** icon to display the data of the last record.

4- Click on the **"First record"** icon to display the data of the first record.

Create a form in Layout view
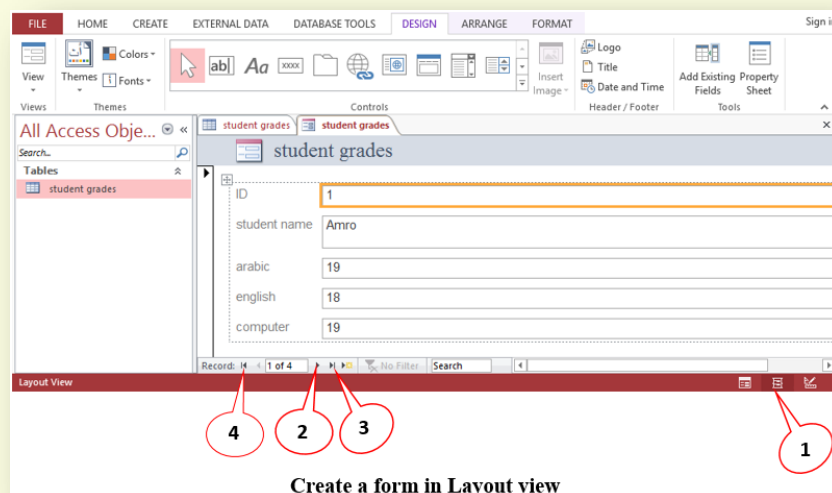
Note that:

• The form is used to enter and modify data in the "Student Grades" table.

• All data entered through the form appears in the "Student Grades" table.

• Data can be entered through the data table or through the form.

• There are several other ways to create a form in an Access desktop database.

Second: Queries in databases:

"Queries are tools used to obtain data from the database according to "specific criteria or conditions", and through the query, information can be obtained from the database based on the data stored in the database.

Examples of queries:

• Create a query to display data from a student's record.

• Create a query to display a list of students who scored more than 18 marks in English.

Create a new query using the "Query Design" method

Access provides many methods that allow you to create a query, including, for example, using the Query Design view, which is the method that we will discuss and is appropriate for what is required to be created.
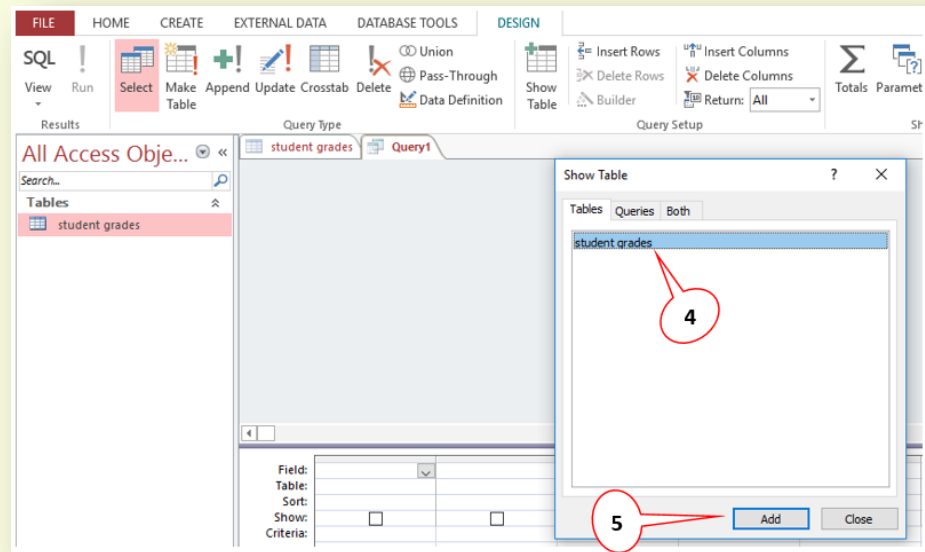
When using the Query Design method, you can have greater control over the details of the query design.

Steps to create a new query using the Query Design method:

1- Choose the Create tab
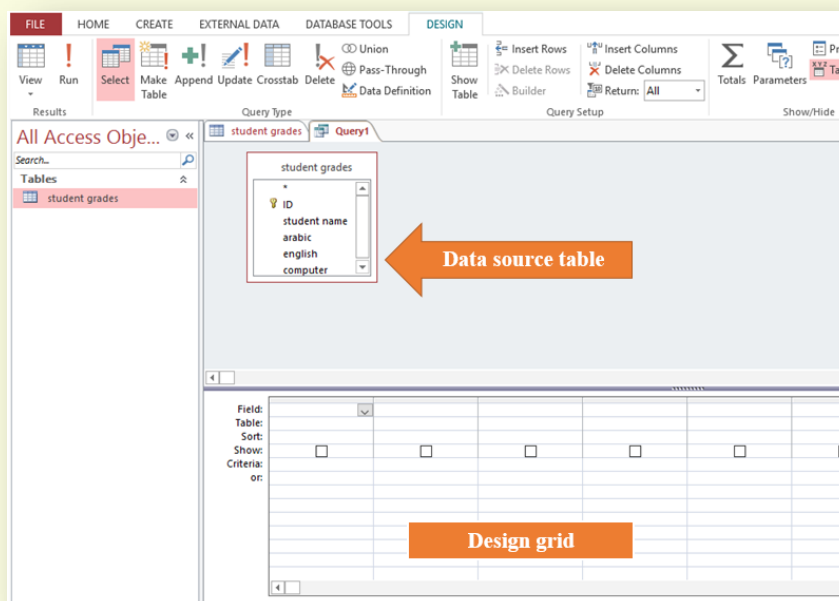
2- Click on Query Design.
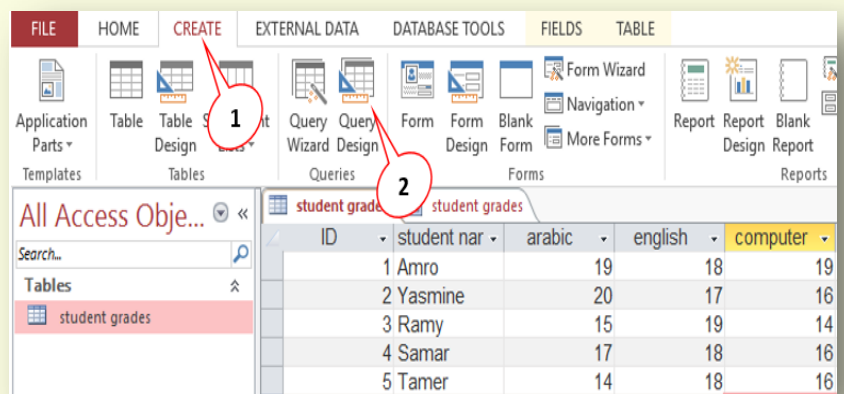
3- The following screen appears:

4- Select the data source table to be used, which is "Student Grades".

5- Click Add, then Close.

The "Design View" window will appear, which is divided into two parts, the upper part contains <u>the data source table</u>, and the lower part is <u>the query design grid.</u>

Window of Design View

 <u>**Now you are required to create a query:**</u> It shows <u>the names of all students</u> and <u>the Arabic grade only for each student</u>.

- In this query we will deal with the fields of the "Student Grades" table:

- To do this, the field names are listed on the query design grid.

Add a field to the design grid:

To add a field to the design grid,

- Use the drag and drop method for the field name.

- Drag the field from the data source table in the upper part of the "Query Design" window to the design grid, specifically to the "Field" field row in the lower part of the "Query Design" window.

- When you add a field by drag and drop in the design grid, Access automatically fills the Table row in the design grid with the name of the table used "Student Grades", to show the data source of this field.

- Insert the rest of the table fields to the design grid as shown in the following screen.
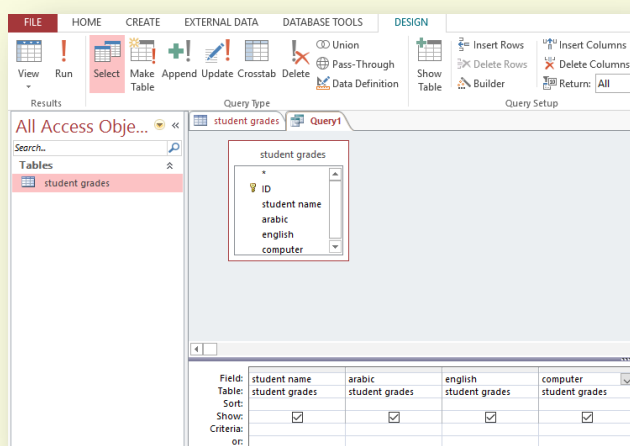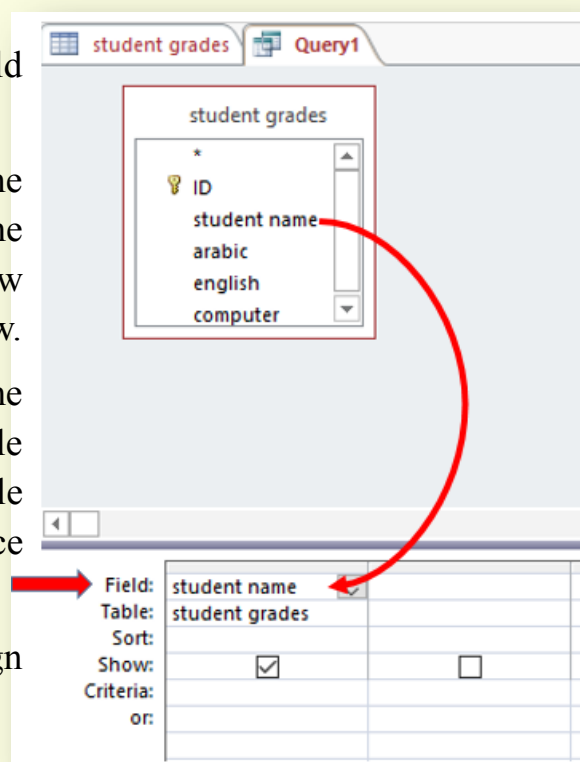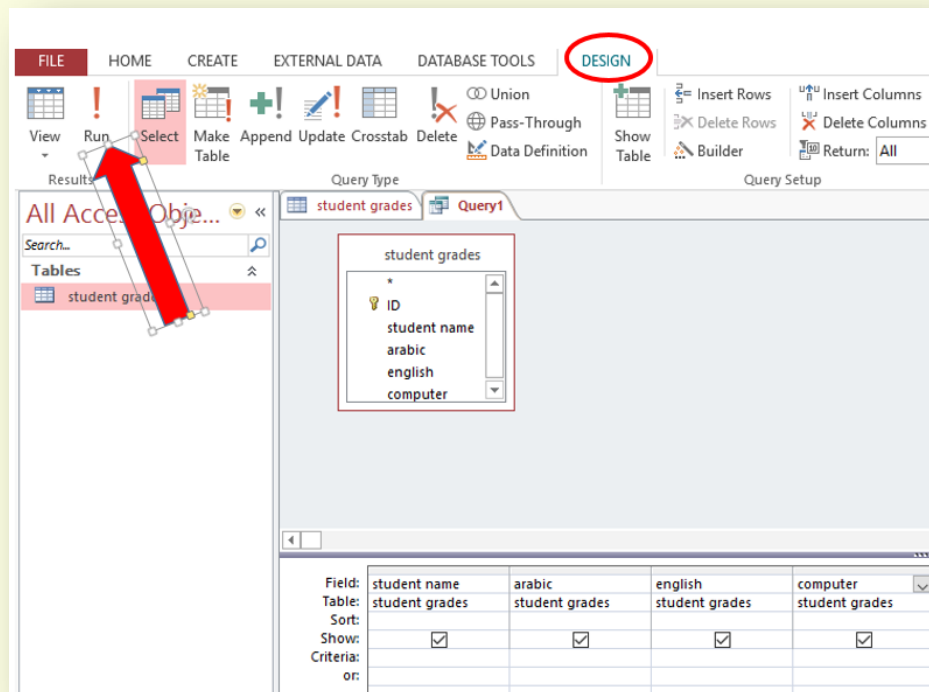

Table fields after inserting them into the design grid

Execute the query:

- On the Design tab

- Click on the Run icon in the Results group

Executing the query

- The query result appears in the form of a table, showing all student data.


Result of query execution

However, what is required is to create a query that shows <u>the names of all students</u> and <u>the Arabic score only for each student.</u>

Hide a field or fields from the query result:

- To hide one or more fields from the query result,

- From the "View" menu, choose "Design View"

- The query design window will appear.

- Click on the ✓ sign in the check box in the <u>Show row</u> in the design grid below the columns Computer score and English score.

- The sign will be removed, which means hiding the field/fields in the query
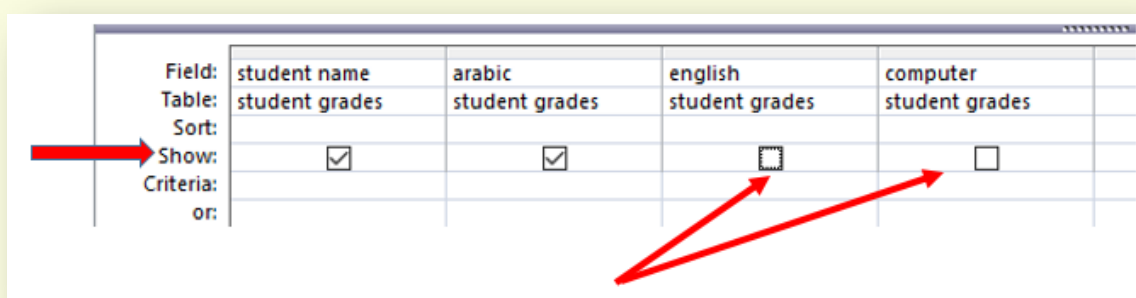
result.

- When you remove the ✓ sign from the English score and computer score columns in the Show row in the design grid, this means that these two fields will not appear when executing the query.

- Click on the **Run** icon in the **Results** group and the result will appear as follows:
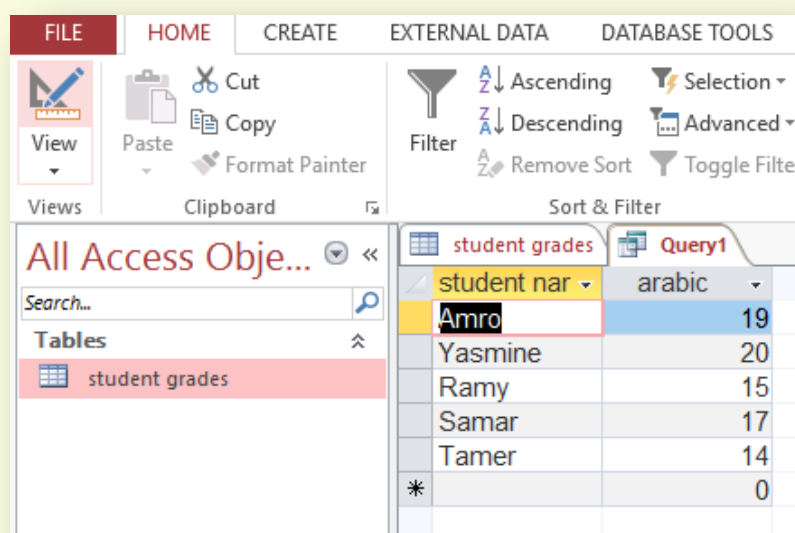
Result of query execution

Establishing criteria or conditions within the query:

- The **Criteria** in a query helps you to identify specific items in an **Access** database.

- If a record matches all the criteria you entered in the query grid, the record will appear in the query results.

How to add Criteria or Conditions in a Query:?

To add Criteria to a query, you must:

- Open the query in **Design View**.

- Type the criterion or criteria in the **Criteria** row.

For example: You are required to create a **query** to show only the data of the student **Yasmin's** record, steps:

- Type the search criterion ="ياسمين" in the "Student Name" column in the **Criteria** field.

- We write the condition in the column of the field **"Student Name", and in the row Criteria**
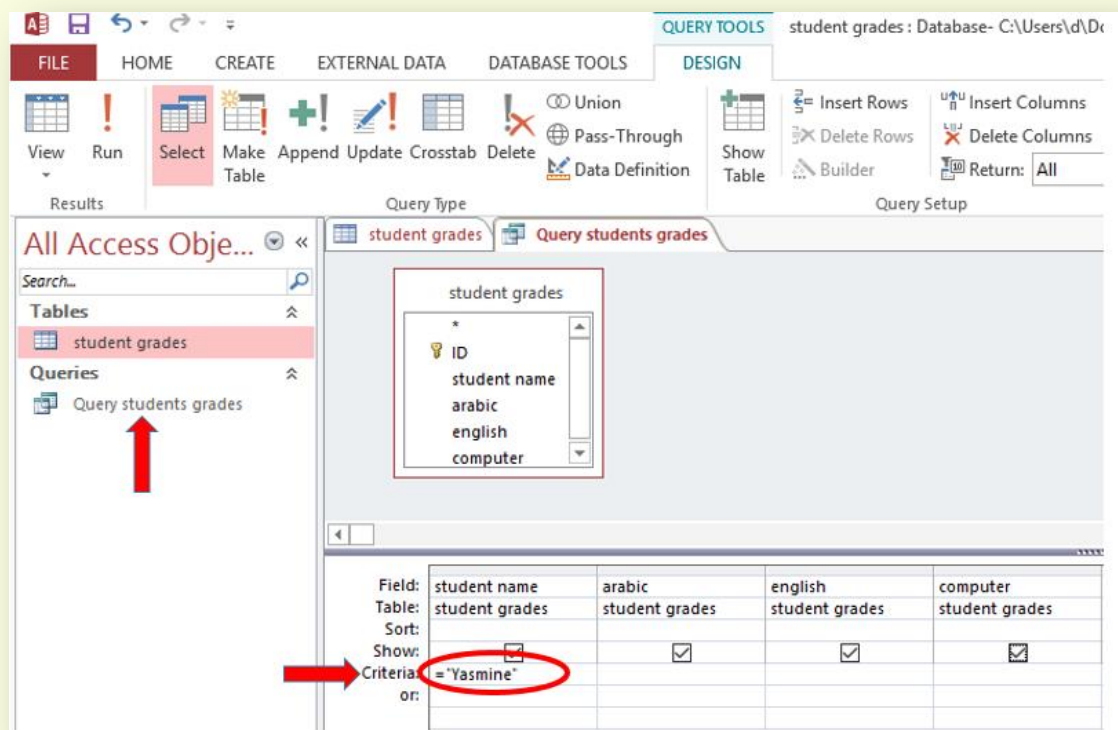
- Execute the query, the student record or records that meet the criterion or condition are displayed.

student name ↴	arabic ▾	english ▾	computer ▾
Yasmine	20	17	16

The result of executing the query is as shown in the figure.

For additional activities and exercises, please turn to the activity booklet (Activity No. 1)

Self-assess

Go to the objectives at the beginning of the lesson.

Check the correc, I can........ box.

1- Place a check mark (✓) preceding the correct statement and a check mark (✗) preceding the incorrect statement

1. The form is a graphical interface designed to interact with data stored in the database. ( )

2. We use the form to enter, modify or delete this information in an organized and convenient way. ( )

3. A new form can be created under the name "Enter Student Grades" using the Form Wizard. ( )

4. All data entered through the form does not appear in the "Student Grades" table. ( )

5. Data can be entered through the data table or through the form. ( )

6. There are several other ways to create a form in an Access desktop database. ( )

7. We use the Query Design view to display the query results. ( )

8. The Query Design View window is divided into three parts. ( )

9. The Query Design window is divided into two parts; the upper part is the query design grid. ( )

10. The Query Design window is divided into two parts; the lower part is the data source table. ( )

Lesson 10
(Your Digital Project)

Lesson 10 — **Your Digital Project**

Objectives:

By the end of the lesson, I will be able to:	After the lesson, check the correct box: I can .....

- **Explain the stages of designing my research project.**
  ☐ Very good   ☐ Ok   ☐ Need more work

- **Design one of the projects I am looking forward to.**
  ☐ Very good   ☐ Ok   ☐ Need more work

- **Discuss my research ideas in various ways.**
  ☐ Very good   ☐ Ok   ☐ Need more work

Engage

How can you design your digital project? Which digital applications are used to express your idea?

Learn

In the previous years, you have learned about creating a digital project through different tools such as using the **PowerPoint** presentation program and designing a poster with consideration for good design principles. Now, we will learn more about the stages of implementing your digital project.
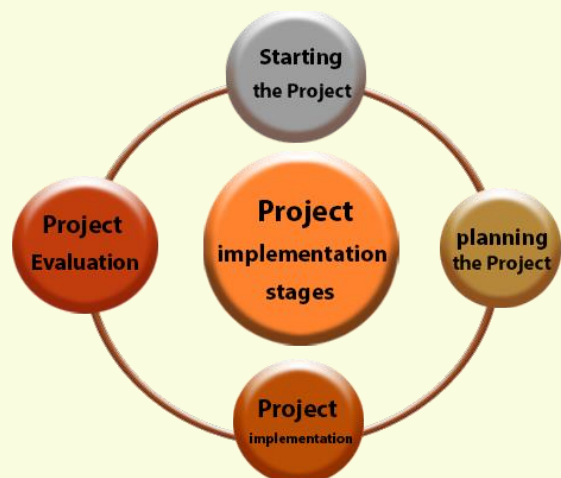
Stages of Project Implementation:

1. **Stage One: Start the Project**
   - Determine a clear, achievable idea.
   - Determine specific, measurable, and achievable goals.
2. **Stage Two: plan the project**
   - Develop detailed plans and studies that include a work plan.
   - Develop a specific timetable for each stage of the project.

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- Determine project requirements

3. Stage Three: Implement the project
- Form a work team.
- Assign roles and responsibilities to each individual.
- Start work, the actual implementation of the project begins according to the plans set.

4. Stage Four: Assess the project
- **Follow-up and evaluation:** The progress of the project is continuously monitored, performance is evaluated compared to the plan, and the necessary adjustments are made to the course of work.
- **Problem management:** Potential problems that may face the project are identified and proactive steps are taken to mitigate or avoid them.
- **Delivery and evaluation:** The final project outputs are delivered.
- **Documenting lessons learned:** All lessons learned from the project implementation experience are documented, to benefit from them in future projects.
- **Offering thanks and appreciation** to all those who contributed to the completion of the project.

Now let's implement the steps of one of the projects:
First- Project initiation stage:
Proposing ideas for projects:
Students propose ideas for some projects and the goal of each project.

Project name proposal: The Great Nile River and the Rivers of the World.
Objectives of the Great Nile River and the Rivers of the World Project:
• **Study of natural phenomena:** The study of rivers contributes to understanding natural phenomena related to the water cycle, such as floods and droughts, and their impact on climate and the environment.
• **History and heritage:** Rivers play an important role in the history and civilizations of peoples, and studying them helps to understand the development of civilizations and their interaction with the aquatic environment.

• Studying the Nile and other rivers is a journey rich in knowledge and benefit, contributing to a better understanding of the natural world, sustainable

management of water resources, economic and social development, and enhancing human well-being.

Second: Project Planning Stage:

Activity (1):

Dear student, with the help of your teacher and in cooperation with your colleagues, in your opinion:

- What data and information do you need to collect for the project?
- What tools, devices and applications are required to be prepared and equipped for this project?
- What is the time period required to implement the project?

....
....
....

Data and information you need to collect for the project:

• Find the five most famous rivers in the world.

• Design a table containing data for the five most famous rivers, including the name of the river - its length - the name of the source country - the name of the downstream country - the number of countries it passes through - the name of the continent in which the river is located.

• Find pictures of this river.

• Find a video that shows information about the river.

• Use reliable websites and reliable sources.

• Use the Egyptian Knowledge Bank.

• Find more information about each of the five rivers.

• Find the length of the Nile River - the name of the source country - the name of the downstream country - the number of countries it passes through.

• Ask your social studies teacher to verify the data and information you and your colleagues have collected.

Tools, devices, and applications required to prepare and equip for the project

• Identify the computer and the required peripherals.

• Prepare and equip the applications and programs used.

• Determine the time period for the project.

• Identify direct and indirect communication tools to exchange ideas and opinions and exchange data and information.

• Identify reliable sources.

Third: Project implementation stage:

• Forming work groups

• Dividing tasks among colleagues

• Determining the tasks of each colleague

• Starting work to implement the project according to the plans set.

Fourth: Project evaluation and assessment stage:

• Continuous follow-up by the teacher and the head of each group to monitor the progress of the project.

• Identify the problems facing the working group in implementing the project and find solutions for them by the students and with the help of the teacher.

• Collect the tasks, and compile the project and present it to the group to express their opinion and amend it if necessary.

• Present the project of each working group to all students.

• Students choose the best project

• Offer thanks and appreciation to all who contributed to the completion of the project.

Some applications and digital tools you need to implement the project

Applications you need during the implementation of the project
**Applications from: Google App**

• **Google Docs:** A cloud application to create a text file.

• **Google Sheets:** A cloud application to create spreadsheets.

• **Google Slides:** A cloud application to create a presentation.

To use these applications and various Google cloud computing services, you must register with your account that you previously created.

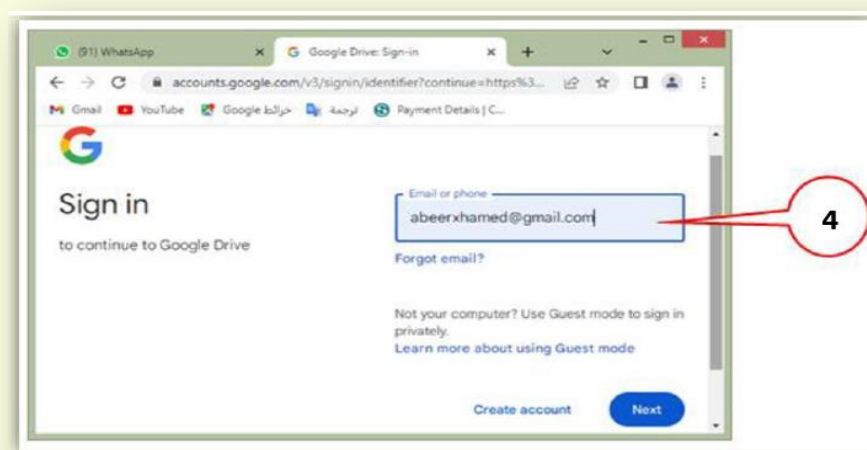## Sign in using a Google Account to deal with Google Drive:

1- **Type Google.com in the browser**
2- **Click the Google apps icon.**
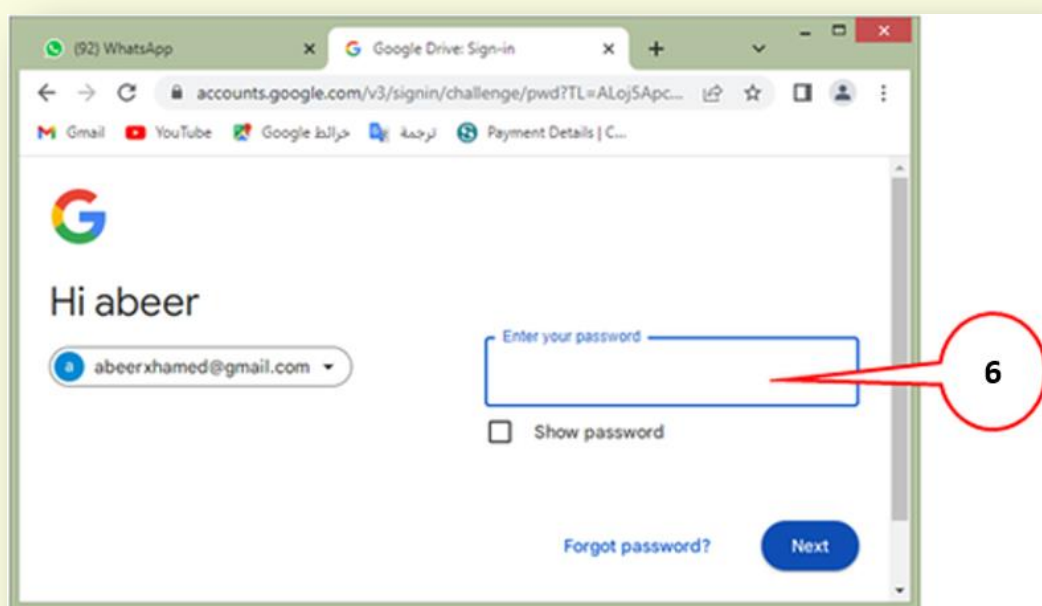3- **Select the Drive icon.**
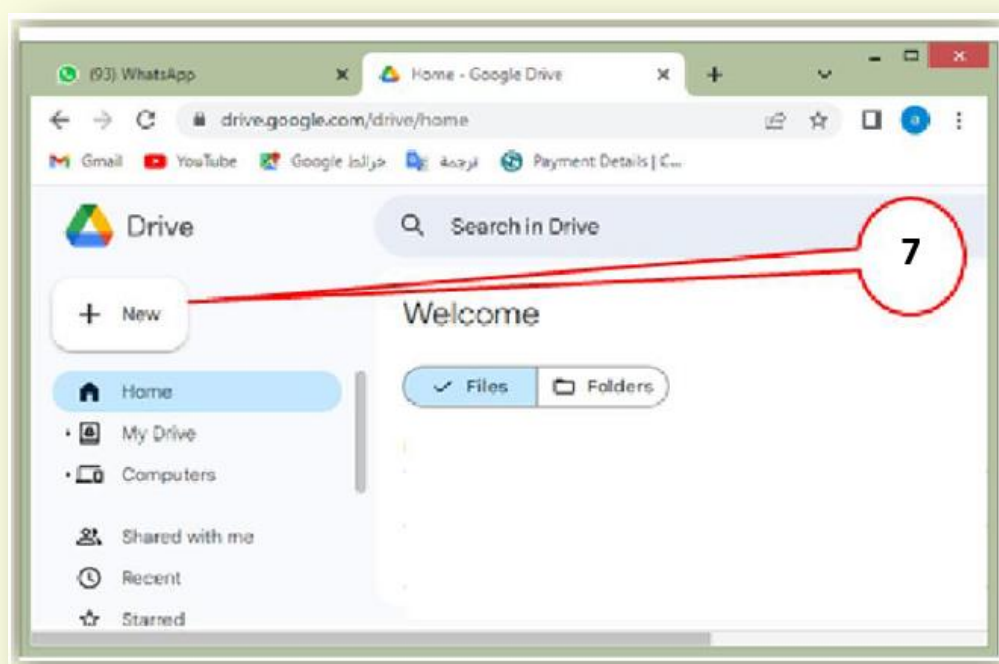
The following screen appears.
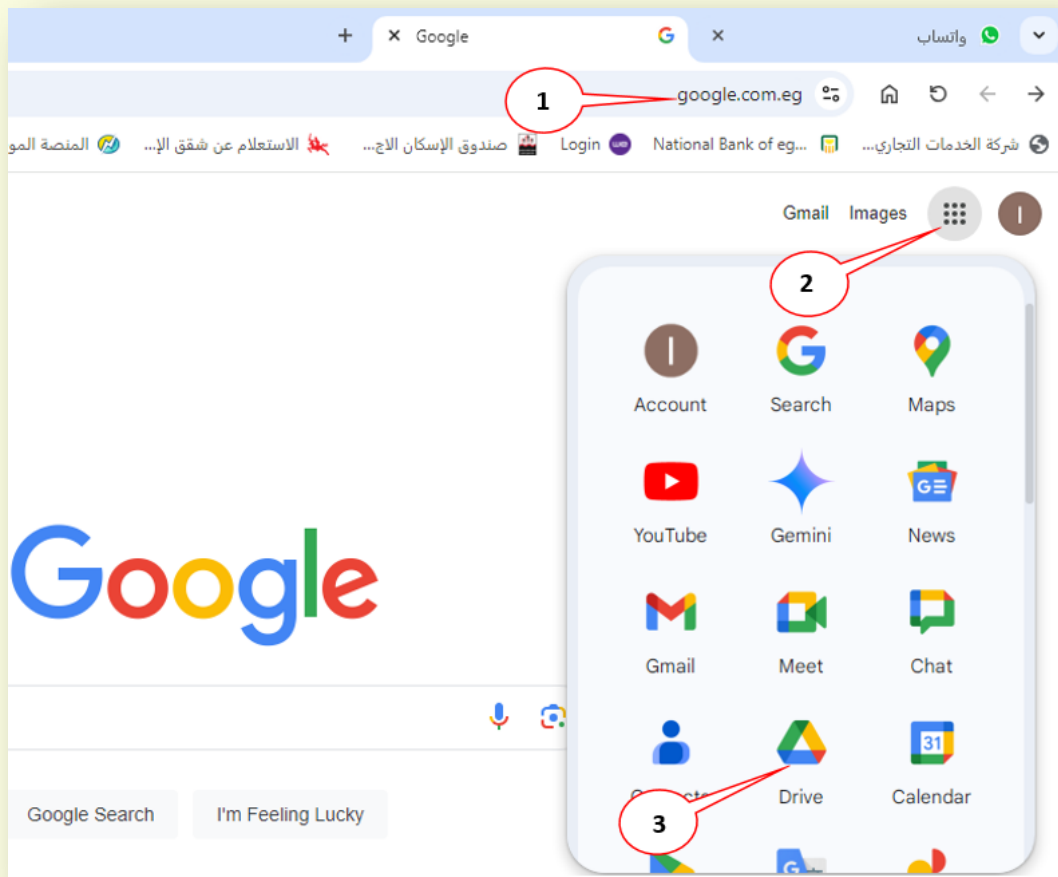
4- **Enter the username.**
5- **click "Next."**

6- Enter the password then click Next.
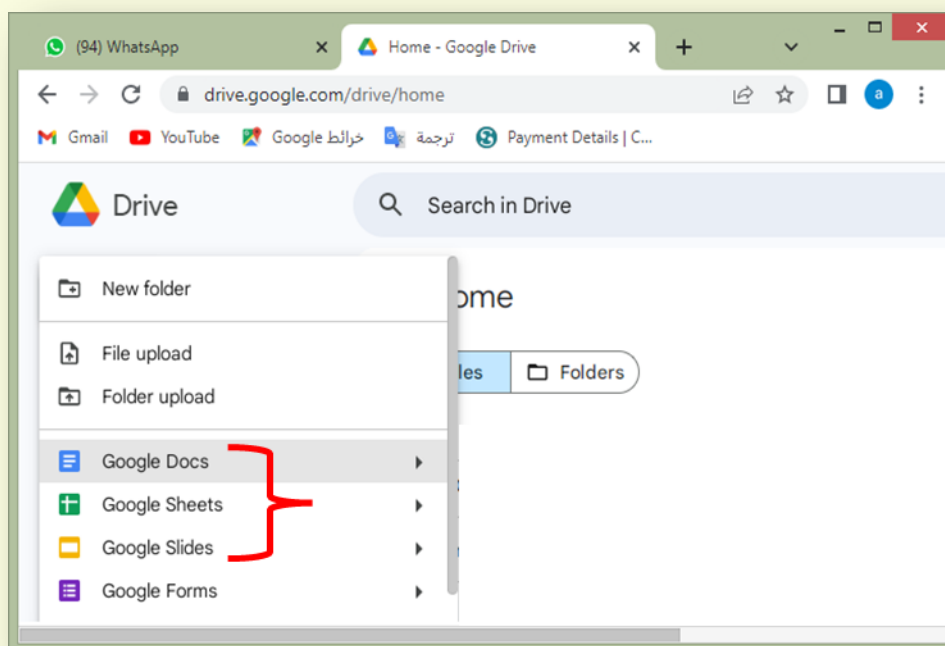

7- Now, registration has been completed using your Google account.

To present the screen in front of you.

Click NEW

Now,

you can open the different cloud applications that appear in front of you in

the list, including Google Docs, Google Sheets, Google Slides, and use them in your project.

First: Using the Google Docs application in the project

Activity (2)

Dear student, with the help of your teacher and in cooperation with your partners, open the Google Docs application as one of the cloud computing service applications. It is one of the text formatting applications that allows you to write, format, save, print and share texts with others

Activity (3)

Dear student, with the help of your teacher and in cooperation with your partners, review the components of the main screen of the Docs application and write 4 of its components:

1- ………………………………………………………………….

2- ………………………………………………………………….

3- ………………………………………………………………….

4- ………………………………………………………………….

Activity (4)

Dear student, with the help of your teacher and in cooperation with your partners, search the Internet for the importance of studying the world's rivers and write two paragraphs in the application docs:

...……………………………………………………………………..

...……………………………………………………………………..

Get help from your social studies teacher

Activity (5)

Dear student, with the help of your teacher and in cooperation with your partners, search the Internet for a list of the most important rivers in the world, including 5 rivers, and write them in **docs**

Activity (6)

Dear student, with the help of your teacher and in cooperation with your partners, format the paragraphs and lines for what you wrote in **docs**

Activity (7)

Dear student, with the help of your teacher and in cooperation with your partners, save the document as "**Rivers of the world**" in **docs**

Second: Using the Google Sheets application in the project:

Activity (8)

Dear student, with the help of your teacher and in cooperation with your partners, open the Sheets application as one of the cloud computing services applications. It is one of the spreadsheet applications that allow you to create spreadsheets that contain literal values or Digital and formula equations and save, print and share them with others.

Activity (9)

Dear student, with the help of your teacher and in cooperation with your partners, review the components of the main screen of the Sheets application and write 4 of its components:

1- ...……………………………………………………………..

2-...…………………………………………………………….

3-...…………………………………………………………….

4-...………………………………………………………………

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Activity (10)

Dear student, with the help of your teacher and in cooperation with your partners, search online for the longest rivers that you wrote in the Docs application and their geographical location.

The river	The river length	Location

Activity (11)

Dear student, with the help of your teacher and in cooperation with your partners,

- Create a table with the river data you collected.
- Make a schematic diagram of the distribution of the lengths of those rivers in the Sheets application.

Third: Using the Google Slides application in the project:

Activity (12)

Dear student, with the help of your teacher and in cooperation with your colleagues, open the Slides application as one of the cloud computing services applications. It is one of the presentation applications that allows you to create slides that display textual content, images, video, a table, a schematic diagram, or drawings to an audience in a hall, meeting, or online, and save, print, and share them with others.

Activity (13)

Dear student, with the help of your teacher and in cooperation with your partners, review the components of the main screen of the Slides application and write 4 of its components:

1-...……………………………………………………………….

2-...………………………………………………………………

3-...………………………………………………………………

4-...……………………………………………………………….

Activity (14)

Dear student, with the help of your teacher and in cooperation with your partners, prepare the following slides in the Slides application from the data you collected through searching the Internet and used in the Docs and Sheets applications.

1- An introductory slide explaining the goal of the project

2- Two slides for the most important global rivers with illustrative images

3- A slide for distributing the lengths of the main rivers

Dear teacher, ask your students to choose the best project

Self-assess

Go to the objectives at the beginning of the lesson.

Check the correct, I can........ box.

Translation committee

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